United States Mission Control Center (USMCC)

National Rescue Coordination Center (RCC) and Search and Rescue Point of Contact (SPOC) Alert and Support Messages

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Version 1.1

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(USMCC)
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and Search and Rescue Point of Contact (SPOC)
Alert and Support Messages

1   Introduction

1.1   Overview of Cospas-Sarsat

Cospas-Sarsat is an international satellite system for search and rescue established and operated by Canada, France, Russia and the USA. The system uses radio-beacons, either manually or automatically activated, to alert search and rescue forces of a person in distress, an aircraft crash or maritime distress. Signals from radio-beacons are transmitted to low-earth orbiting or geo-stationary orbiting satellites. The signals are then relayed to earth ground stations called Local User Terminals (LUTs) and eventually to Mission Control Centers (MCCs). The USMCC is the focal point for Cospas-Sarsat operations in the United States. The USMCC collects and processes data from national LUTs and foreign MCCs. It then distributes alert data to national Rescue Coordination Centers (RCCs) and SAR Points of Contact (SPOCs) and foreign MCCs.

Figure 1.1 presents an overview of the Cospas-Sarsat System.
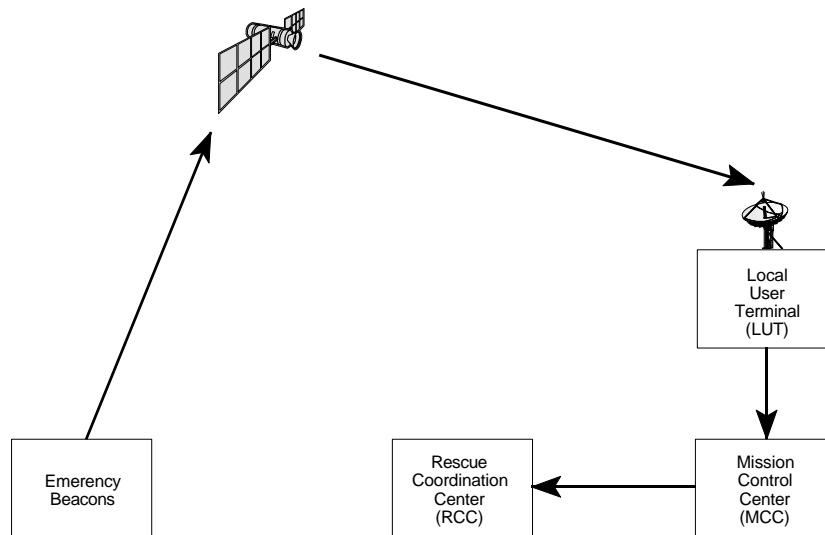

Figure 1.1: Overview of Cospas-Sarsat

1.2   Document Objective

This document describes the messages transmitted to national RCCs and national SPOCs. The document contains general information in Section 1 and information about the methodology used to develop the alert messages in Section 2. Sections 3 and 4 contain examples of alert and support messages and an explanation of the information contained in the messages. These sections are intended for users of the data.

The document is structured so that the user may use it as a reference and go directly to a specific type of alert message (in Section 3). In order to allow for the document to be used in this manner details on the information is duplicated under each type of alert message.

The Appendices to this document contain the following information:

•   Definitions of terms used in messages
•   Beacon registration data block formats
•   International RCC and SPOC message formats
•   Alert message structures (distribution of this appendix is limited to RCCs automatically processing USMCC messages)
•   Support message structures (distribution of this appendix is limited to RCCs automatically processing USMCC messages)

All RCC and SPOC personnel should thoroughly familiarize themselves with the contents of this document. Cospas-Sarsat Alert messages provide timely information regarding potential distress situations.

> *In order to assist the reader, key points or subtleties of the Cospas-Sarsat System are provided in blocked areas.*
>
> *The descriptions in the following sections contain text in upper case to indicate the character string as it appears in the message. For example FREQuency indicates that the frequency appears in the message with a label FREQ.*

1.3   Reference Documents

More information on the content of alert message data elements can be found in the following documents:

a)   Fourth Generation United States Mission Control Center Data Structures

b)   Cospas-Sarsat Mission Control Centres Standard Interface Description, C/S A.002

c)   International Aeronautical and Maritime Search and Rescue Manual and the corresponding National SAR Supplement

2   Summary of Messages

2.1   Overview and Methodology

There is a substantial amount of information available from the USMCC and its associated LUTs for each beacon alert. Only a subset of the data available at LUTs is passed to the USMCC, and only a subset of that information is passed to the RCCs.   The data available at the MCC includes, but is not limited to the following:

- time of closest approach;
- orbit of satellite;
- satellite identifier;
- frequency of transmitter;
- number of points;
- duration of Doppler curve;
- probability of the "A" solution being correct;
- error ellipse;
- confidence factor;
- cross-track angle; and
- data residuals.

Some of this information is not meaningful to the RCC controller; some information is not reliable; therefore a limited data set was selected to be transmitted to RCCs.

Two key issues were addressed in developing the alert messages:

1)   what information is required by the RCCs; and
2)   how the information should be presented.

It was determined that the following data is needed for each emergency beacon signal:

Alert Data

- **WHAT** kind of alert message the USMCC is transmitting;
- **WHEN** the beacon signal transmitted the signal;
- from **WHERE** the beacon transmitted the signal; and if possible
- **WHO** transmitted the beacon signal.

Supporting Data

C   **WHO** else received or is receiving alerts for this beacon;
C   **WHEN** the beacon signal was previously detected;
C   **WHEN** the beacon should be detected again.

2.1.1 Alert Messages

Alert messages are structured to present appropriate data in a logical, consistent format. Figure 2.1 describes the structure of the alert messages. Sample alert messages are presented in chapter 3.

Message Administration Block

Alert Data Block

Beacon Decode Data Block (406 MHz Only)

Beacon Registration Data Block (406 MHz Only)

Support Data Block

Incident Feedback Report
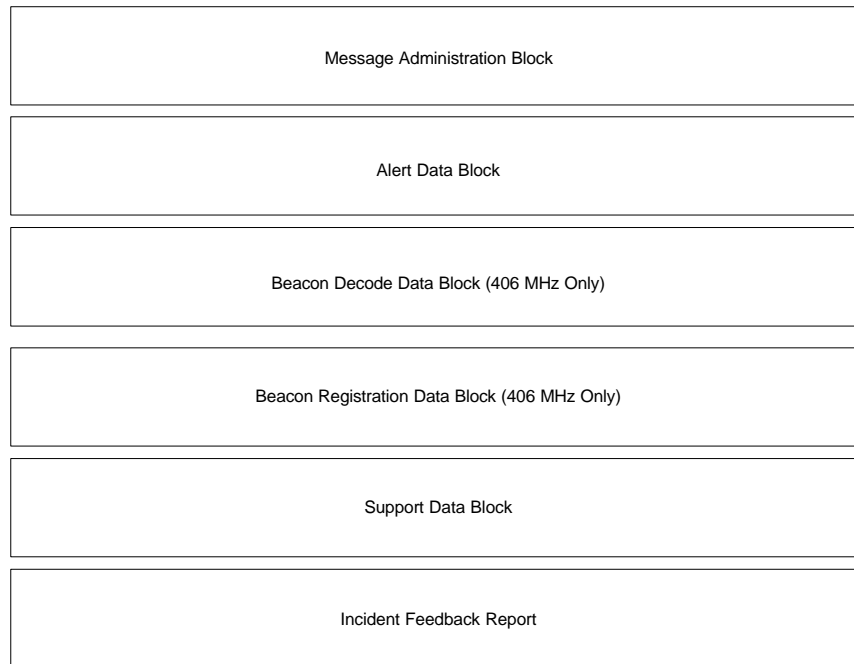
Figure 2.1: Alert Message Structure

The message administration block contains the current and original message numbers to the RCC, the source of the alert, the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title.

The alert data block contains the time and position of the alert(s).

The beacon decode data block contains the translation of the encoded digital data transmitted by a 406 MHz beacon.

The beacon registration data block contains information extracted from NOAA's 406 MHz Beacon Registration Database.

The support data block contains information on MCC processing time for the beacon alert, a list of other recipients for this alert, previous detections of a beacon and predicted future detections for the beacon.

The incident feedback report block requests information from the RCCs on the outcome of the beacon transmission or signal source.

2.1.2   Support Messages

Support messages are treated differently from alert messages and do not follow the same structure. These messages are designed to relay specific information requested by the RCCs. Sample support messages are presented in chapter 4. As alert and support messages have been modified recently, Table 2.1 shows the relationship between the old and new messages.

Alert Message Conversion Table		
Old SIT	**New SIT**	**New Message Name**
155	151	121/243 FIRST ALERT
156	156	121/243 NOTIFICATION OF AMBIGUITY RESOLUTION
156	157	121/243 COMPOSITE POSITION UPDATE
172	158	121/243 MISSED PASS/SITE STATUS REPORT
173	160	406 BEACON UNLOCATED FIRST ALERT
174	161	406 BEACON LOCATED ALERT (AMBIGUITY UNRESOLVED)
174	162	406 BEACON LOCATED ALERT UPDATE (AMBIGUITY UNRESOLVED)
175	163	406 BEACON POSITION CONFLICT ALERT (AMBIGUITY UNRESOLVED)
176	164	406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION
176	165	406 BEACON COMPOSITE POSITION UPDATE 406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT
172	166	406 BEACON MISSED PASS/SITE STATUS REPORT
N/A	167	406 BEACON DETECTION UPDATE
177	168	USA 406 BEACON DETECTED OUTSIDE US AOR
Support Messages		
Old Sit	**New SIT**	**New Message Name**
915	950	NARRATIVE MESSAGE
OPlot	951	ALERT QUERY (previously referred to as an O-plot)
915	952	406 BEACON REGISTRATION
915	953	BEACON-LUT MUTUAL VISIBILITY

Table 2.1: List of Alert and Support Messages Generated by USMCC

2.2   Alert Messages

Table 2.2 provides a brief description of all the alert messages generated by the USMCC.

SIT	Message Name/Comments
151	121/243 FIRST ALERT This message is transmitted by the USMCC whenever a 121.5 and/or 243 MHz signal is first detected by a polar orbiting satellite and the positions determined by the LUT do not match any active sites. A new active site is created and both the real and the image ("A" and "B") positions are provided in the message.
156	121/243 NOTIFICATION OF AMBIGUITY RESOLUTION This message is transmitted whenever the real side of a 121.5 and/or 243 MHz signal is determined (the second polar orbiting satellite pass over the signal).
157	121/243 COMPOSITE POSITION UPDATE This message is transmitted for the third and all subsequent satellite passes for an active 121.5/243 MHz signal or site.
158	121/243 MISSED PASS/SITE STATUS REPORT This message is transmitted when a satellite pass site fails to detect a 121.5/243 MHz signal which was detected on a previous pass.
160	406 BEACON UNLOCATED FIRST ALERT This message is transmitted when a 406 MHz beacon (with registration information or craft identification) is first detected but no encoded or Doppler position information is available . These messages are most often sent when a beacon signal is first detected by a Geostationary satellite.
161	406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED) This message is transmitted when a 406 MHz beacon is first detected with encoded or Doppler position information available.
162	406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED) This message is transmitted when a "406 BEACON LOCATED FIRST ALERT" (SIT 161) has been previously transmitted and additional information regarding the A/B probability is available.
163	406 BEACON POSITION CONFLICT ALERT (AMBIGUITY UNRESOLVED) This message is transmitted when Doppler or encoded positions for a 406 MHz beacon differ by more than 50 kilometers from the position reported in a previous alert message (before ambiguity has been resolved).

SIT	Message Name/Comments
164	406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION This message is transmitted when the ambiguity of a previous 406 MHz beacon alert (either the A/B ambiguity or an encoded position ambiguity) is resolved.
165	406 BEACON COMPOSITE POSITION UPDATE This message is transmitted when the new Doppler or encoded position is within 50 kilometers of the previous resolved position. 406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT This message is transmitted when Doppler or encoded positions differ by more than 50 kilometers from the previous resolved position.
166	406 BEACON MISSED PASS/SITE STATUS REPORT This message is transmitted when a satellite pass (at least 10 degrees above the horizon to the "A", "B", resolved or encoded position) fails to detect the 406 MHz beacon.
167	406 BEACON DETECTION UPDATE This message is transmitted when a 406 MHz unlocated alert is received after a missed pass is reported and causes the missed pass counter to be reset. This message can also be sent if an unlocated alert is received and no messages have been transmitted to the RCCs for at least two hours.
168	USA 406 BEACON DETECTED OUTSIDE US AOR This message is transmitted whenever a United States county coded 406 MHz beacon is detected outside the US Area Of Responsibility (AOR).

Table 2.2: Description of Alert Messages (cont)

2.3 Support Messages

Table 2.3 provides a brief description of the support messages generated by the USMCC.

SIT	Message Name/Comments
950	NARRATIVE MESSAGE This message is used to transmit narrative text messages to the RCCs
951	ALERT QUERY This message is used to provide alert information on active and closed sites processed by the USMCC. There are three levels of queries available to the RCCs, ranging from general information about what alerts were detected in a given area over a given time or for a particular beacon, to comprehensive data files with all data related to a particular beacon or Site.
952	406 BEACON REGISTRATION This message is used to transmit 406 MHz beacon registration information to RCCs
953	BEACON-LUT MUTUAL VISIBILITY This message is used to transmit a list of satellite passes that have mutual visibility with a United States LUT and a specified location.

Table 2.3: Description of Support Messages

3 Explanation of Alert Messages

The following sections contain an explanation and samples of the different alert messages. A conscious effort was made to keep the general format of all messages consistent. Therefore, "N/A" is used to indicate that data is not available or not applicable for a particular alert or support message. Definitions for the different elements, or fields, in alert messages are provided in Appendix 1.

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3.1   121.5/243 First Alert (SIT 151)

This message is transmitted by the USMCC whenever a 121.5 and/or 243 MHz signal is first detected by a polar orbiting satellite and the positions determined by the LUT do not match any active sites.   A new active site is created and both the real and the image ("A" and "B") positions are provided in the message.

```
Message Administration Block
```

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus the 121.5/243 First Alert can also be referred to as a SIT 151.

```
Alert Data Block
```

This block provides detection information for the alert(s).   The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE are provided in degrees, minutes, tenths of minutes, and hemisphere. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the site as a dual frequency signal source (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to the limited capabilities of the Cospas satellites, or the match/merge processing in the USMCC, it is possible to have a site start on only one frequency, then become a dual frequency after additional information is received.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

C	*The "D" indicator in the FREQ column is a good sign that this is a real beacon.*
C	*An "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.*
C	*The "YES" indicator in the SWP column is a good indicator that this is a real beacon.*

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this field is left blank for first alerts). PREVIOUS PASS INFORMATION contains a list of the last four satellite passes detected for this beacon or signal (this field is left blank for first alerts).

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a

"MISSED PASS" and a message will be sent to the RCC advising them of the missed pass.
Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes.
If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 first alert is provided on the next page.

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```
/62141 00000/3660/98 015 0030
/151/366F


************************** 121/243 FIRST ALERT **************************


********************** DETECTION TIME AND POSITIONS **********************


SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ     SWP SAT SOURCE SRR   /BUFFER
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  TX1    PACAR
3B12345  28 24.4N 089 34.5W 15 0015 JAN D121.457 YES S3  TX1    AFRCC /CGD08
2A12347  39 12.4N 123 34.5W 15 0016 JAN  243.001 UNK S3  TX1    PACAR
2B12347  38 11.4N 089 34.5W 15 0016 JAN  243.001 UNK S3  TX1    AFRCC


*********************** SUPPORTING INFORMATION ***************************


USMCC PROCESSING TIME: 15 0030 JAN


THIS ALERT MESSAGE IS BEING SENT TO:
       PACAR, AFRCC, CGD08


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: NONE


NEXT TIME SIGNAL SHOULD BE DETECTED:


SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345 A    15 0045 JAN  S3   SSE     HIGH
3A12345 A    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
3B12345 B    15 0200 JAN  S3   SSE     LOW (WILL NOT COUNT AS MISSED PASS)
3B12345 B    15 0240 JAN  C6   TX1     HIGH
2A12347 A    15 0200 JAN  S3   SSE     HIGH
2A12347 A    15 0239 JAN  C4   OSE     HIGH
2B12347 B    15 0200 JAN  S3   SSE     LOW (WILL NOT COUNT AS MISSED PASS)
2B12347 B    15 0240 JAN  C6   TX1     LOW (WILL NOT COUNT AS MISSED PASS)


QQQQ
/LASSIT
/ENDMSG
```

3.2   121/243 Notification of Ambiguity Resolution (SIT 156)

This message is transmitted when the real side of a 121.5 and/or 243 MHz signal is determined by the second polar orbiting satellite pass over the signal. Only the valid position ("A" or "B") within a given SRR (or buffer zone) is included in the message. This message will go to the recipients of the corresponding first alert.

<div style="border:1px solid black; text-align:center;">

Message Administration Block

</div>

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121.5/243 ambiguity resolution can also be referred to as a SIT 156.

<div style="border:1px solid black; text-align:center;">

Alert Data Block

</div>

This block provides the composite position of the signal source and the information which led to ambiguity resolution. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The IMAGE SITE identifies the site ID of the image position.

The LATITUDE and LONGITUDE of the composite position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA).   It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal are also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following data is provided for each of the pass or elemental data that was used to compute the merged or composite position:

The SITE ID, LATITUDE and LONGITUDE. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the site as a dual frequency signal source (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to the limited capabilities of the Cospas satellites, or the match/merge processing in the USMCC, it is possible to have a site start on only one frequency, then become a dual frequency after additional information is received.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

C   *Plot the elemental solutions to determine drift*
C   *The composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal*
C   *Beacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only*

C   *The "D" indicator in the FREQ column is a good sign that this is a real beacon.*
C   *An "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.*
C   *The "YES" indicator in the SWP column is a good indicator that this is a real beacon.*

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this field is left blank for first alerts).   PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SWeeP, SATellite and SOURCE) detected for this beacon or signal.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

| Incident Feedback Report |

Each 121.5/243 MHz composite alert site requires documentation in order to identify opportunities to improve beacon design, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report. Sometimes an RCC will receive alert messages for several sites which actually relate to the same signal source. When this occurs, the RCC need only complete ONE Incident Feedback Report and list all associated Site IDs.

An
example of a 121/243 MHz ambiguity notification message is provided on the next page.

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```
/62141 00000/3660/98 015 0100
/156/366F


***************  121/243 NOTIFICATION OF AMBIGUITY RESOLUTION ***************

SITE ID: 3A12345                                      IMAGE SITE: 3B12345

***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION ***************

LATITUDE LONGITUDE  DURATION   PASSES  SRR  /BUFFER
29 23.4N 123 34.5W  001.5 HRS  002      PACAR

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION *********

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.1N 123 34.9W 15 0045 JAN D121.457 YES S3  SSE

***********************  SUPPORTING INFORMATION  *************************

USMCC PROCESSING TIME: 15 0058 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD08, AFRCC

PREVIOUS PASS INFORMATION:

SITE ID  LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345 C    15 0220 JAN  S3   SSE     HIGH
3A12345 C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
```

```
*** INCIDENT FEEDBACK REPORT FOR 121/243 ALERT,  FAX BACK TO 301-457-5406 ***

SITE ID: 3A12345             COMPOSITE TCA: 15 0045 JAN
CALCULATED LAT: 29 23.4N     LONG: 123 34.5W

OTHER SITE IDS FOR SAME INCIDENT:

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION?  YES / NO

COSPAS-SARSAT FIRST NOTIFICATION?  YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY?  YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

RESCUED:        TOTAL INVOLVED:

ACTUAL LOCATION  LAT:        LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT  TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT_____ CUTTER_____  HELO_____ FIXED WING_____ CAP_____ OTHER_____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

BEACON MANUFACTURER:

BEACON MODEL:

BEACON TYPE: ELT / EPIRB / PLB / OTHER

REMARKS:
QQQQ
/LASSIT
/ENDMSG
```

3.3   121/243 Composite Position Update (SIT 157)

This alert is transmitted for the third and subsequent satellite passes which detect an active 121.5 or 243 MHz signal or site.

```
┌─────────────────────────────────────────────────────────┐
│              Message Administration Block                │
└─────────────────────────────────────────────────────────┘
```

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121.5/243 composite position update messages can also be referred to as a SIT 157.

```
┌─────────────────────────────────────────────────────────┐
│                     Alert Data Block                     │
└─────────────────────────────────────────────────────────┘
```

This block provides the updated position information for the composite alert site and the alert data which led to the position update. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE of the updated position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA).   It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal are also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following is provided for each of the pass or elemental data that was used to update the merged or composite position:

The SITE ID, LATITUDE and LONGITUDE. The DETECT TIME is given as a date-time group in Zulu time (UTC).

The FREQuency is provided to the nearest kilohertz. The "D" identifies the site as a dual frequency signal source (i.e., 121.5 and 243 MHz). Most 121.5 MHz ELTs and EPIRBs in the United States transmit on both the 121.5 and the 243 MHz frequencies. Due to the limited capabilities of the Cospas satellites, or the match/merge processing in the USMCC, it is possible to have a site start on only one frequency, then become a dual frequency after additional information is received.

The SWeeP indicates that an audible signal was detected (this audible signal is used for homing). A "YES" in this column indicates that audio modulation is probably present (i.e., the whoop, whoop, whoop sound that can be detected by tuning a radio or Radio Direction Finder (RDF) to 121.5 MHz). An "UNK" indicates that it is not known if sweep is present.

The SATellite which detected the signal is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

C   *Plot the elemental solutions to determine drift*
C   *The composite position, or the position to where ambiguity has been resolved, is calculated by the USMCC and may not reflect current or actual position of the signal*
C   *Beacon or craft movement which is easily detected by plotting the elemental solutions may not be evident by plotting the composite positions only*

C   *The "D" indicator in the FREQ column is a good sign that this is a real beacon.*
C   *An "UNK" in the SWP column implies that not enough information exists to determine whether or not there is audio modulation.*
C   *The "YES" indicator in the SWP column is a good indicator that this is a real beacon.*

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this field is left blank for first alerts).   PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SWeeP, SATellite and SOURCE) detected for this beacon or signal.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 position update message is provided on the next page.

```
/62141 00000/3660/98 015 0200
/157/366F


******************** 121/243 COMPOSITE POSITION UPDATE ********************

SITE ID: 3A12345

******************** POSITION UPDATED TO THE FOLLOWING ********************

LATITUDE LONGITUDE  DURATION   PASSES  SRR  /BUFFER
29 23.4N 123 34.5W  001.6 HRS  003     PACAR

**************** POSITION UPDATED FROM THE FOLLOWING ALERT ****************

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345   29 23.4N 123 34.5W 15 0150 JAN D121.457 YES C6  CMCC

*********************** SUPPORTING INFORMATION ***************************

USMCC PROCESSING TIME: 15 0159 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE
3A12345   29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT
3A12345   29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345 C    15 0200 JAN  S3   SSE     HIGH
3A12345 C    15 0239 JAN  C4   OSE     HIGH


QQQQ
/LASSIT
/ENDMSG
```

3.4   121/243 Missed Pass/Site Status Report (SIT 158)

This message is transmitted after a satellite pass over a composite position fails to detect a signal. This message will provide the status of all sites which should have been detected by a given satellite pass.

<div style="border:1px solid black; text-align:center">

Message Administration Block

</div>

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus 121/243 missed pass/site status reports can also be referred to as a SIT 158.

<div style="border:1px solid black; text-align:center">

Alert Data Block

</div>

The current active sites section provides a listing of current composite alert sites which should have been detected (but were not) during the satellite pass. The SITE ID is an identifier assigned by the USMCC to show a collection of data associated with a beacon or signal source. The prefix of "1", "2", or "3" indicates the frequency of the first alert (1=121.5, 2=243.0, 3=dual frequency). The prefix will not change even if the site frequency becomes dual. The "A" and "B" indicate the two "sides" of the site. The 5 digit number is a sequential number assigned by the USMCC to reference a specific and unique site.

The LATITUDE and LONGITUDE of the updated position are provided in degrees, minutes, tenths of minutes, and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA).   It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the signal are also provided

The SRR is the search and rescue region in which the alert falls. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The Missed Pass (MP) field contains number of missed passes since the last detection. A site will close when there have been three consecutive missed passes. The CLOSED field contains the

current status of the site.   A "YES" or "NO" will be displayed here to indicate whether or not the Site is closed.

The DETECT TIME, given as a date-time group in Zulu time (UTC), is the time that the satellite should have detected the signal. The SATellite is the satellite that should have detected the signal at the detect time. Lastly the SOURCE is the LUT that should have detected the signal.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC. Missed passes are only generated for United States LUTs*

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon or signal source (this is not applicable for this message). PREVIOUS PASS INFORMATION contains a list of the last four satellite passes (information includes SITE ID, LATITUDE, LONGITUDE, DETECT TIME, FREQuency, SweeP, SATellite and SOURCE) detected for this beacon or signal (this is not applicable for this message).

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the signal source or SITE ID/SOL again. For 121.5/243 MHz alerts, next pass prediction is based on mutual visibility between the signal source, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the signal. The SAT is the next satellite to pass over the beacon or signal source and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

3-17

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 121/243 missed pass message is provided on the next page.

- Remainder of Page Blank -

```
/62141 00000/3660/98 015 0300
/158/366F


***************** 121/243 MISSED PASS/SITE STATUS REPORT *****************

************************ CURRENT ACTIVE SITES *************************

SITE ID   LATITUDE   LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345   29 45.5N   123 56.9W  001.5 HRS 003     PACAR           1  NO
2B12347   39 23.5N   124 34.5W  001.0 HRS 001     PACAR           1  NO

********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
15 0250 JAN  S3  CA1

*********************** SUPPORTING INFORMATION *************************

USMCC PROCESSING TIME: 15 0256 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ     SWP SAT SOURCE
3A12345   29 45.4N 123 55.5W 15 0200 JAN D121.457 YES S3  TX2
3A12345   29 45.9N 123 59.5W 15 0124 JAN D121.457 YES S6  CA1
2B12347   39 23.4N 123 34.5W 15 0159 JAN 243.011  YES S3  CA2

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
1A12345 C    15 0200 JAN  S3   SSE     HIGH
1A12345 C    15 0239 JAN  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG
```

3.5   406 Beacon Unlocated First Alert (SIT 160)

This message is transmitted when a 406 MHz beacon is first detected but no encoded or Doppler position information is available. The beacon identifier and other available information about the beacon is included in the message.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon unlocated first alert can also be referred to as a SIT 160.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone. Since this is an unlocated alert, the SRR listed is that of either (1) the home port of the craft to which the beacon is registered or (2) the owner's home address.

Since this is an unlocated alert, PROBABILITY, SOLUTION, LATITUDE and LONGITUDE are not available.

```
                    Beacon Decode Data Block
```

The information in this block is automatically decoded from the transmitted 406 MHz digital
message. The information can be derived from or linked to the bits contained in the 406 MHz
digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the
beacon. It identifies the country that maintains registration information for the beacon. The MID
CODE is the three digit code assigned by the International Telecommunications Union, this code
corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are
coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number
of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail
number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING
identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e.,
EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

```
                  Beacon Registration Data Block
```

This block provides the data stored in the USMCC Registration Database. All information
available in the database is automatically provided here. The remarks section will contain any
special notes as a result of feedback from the owner, United States Coast Guard, United States Air
Force, or other responding agency, which amplifies the registration information. Refer to
Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and
PLB registration forms all have different formats. The EPIRB format is listed in this example.
Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

```
                        Support Data Block
```

This block provides supporting information about this alert message and any other alert messages
sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in
Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified.
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all
destinations that previously received alert messages for this beacon. As this is a first alert no
information is available. PREVIOUS PASS INFORMATION also is not provided as this is a first
alert. The NEXT TIME SIGNAL SHOULD BE DETECTED cannot be determined as this is an
unlocated alert.

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

An
example of a 406 beacon unlocated first alert in provided on the next page.

- Remainder of Page Blank -

```
/62145 00000/3660/98 046 0104
/160/366M


********************* 406 BEACON UNLOCATED FIRST ALERT ********************

BEACON ID: ADCD0 16672 C0401     SITE ID: 73324

***************** DETECTION TIME AND POSITIONS FOR THE BEACON **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
N/A   N/A  N/A                 15 0004 FEB  S3   SSE     CGD07

************ BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION *********

COUNTRY    : USA           CRAFT ID   : WAQ7615
MID CODE   : 366           HOMING     : 121.5 MHZ
MANUFACTURER: LITTON       MODEL      : 948-000001
SERIAL NUM : 23456         BEACON TYPE: MARITIME

***************** USMCC REGISTRATION DATABASE INFORMATION *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
      1058 ISLAND AVENUE          HOME TEL: 813-934-4657
      TARPON SPRINGS       FL     WORK TEL: 813-934-5678
      34689     USA

CONTACTS: DAN LEONARD              ELROY LEONARD
         HOME TEL: 813-937-0987   HOME TEL: 904-824-0532
         WORK TEL: 813-934-3465   WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER            LENGTH OVERALL (FT):   75
COLOR: GRAY                    CAPACITY:   8
RADIO CALL SIGN: WAQ7615       REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT    INMARSAT NUMBER:

HOME PORT: RICK'S MARINA       SHALLOTTE             NC
ALTERNATE PORT:

MANUFACTURER: LITTON           MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0100 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A
```

```
***** INCIDENT FEEDBACK REPORT FOR 406 ALERT,  FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401  DETECT TIME: 15 0045 FEB      SITE ID: 73324

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION?  YES / NO

COSPAS-SARSAT FIRST NOTIFICATION?  YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY?  YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

RESCUED:       TOTAL INVOLVED:

ACTUAL LOCATION  LAT:        LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT  TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT_____ CUTTER_____ HELO_____ FIXED WING_____ CAP_____ OTHER_____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT?  YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:
QQQQ
/LASSIT
```

/ ENDMSG

3.6   406 Beacon Located First Alert (Ambiguity Unresolved) (SIT 161)

This message is transmitted when encoded or Doppler position information is first available for a 406 MHz beacon. The beacon ID, the two Doppler positions or the encoded position, and any other available information about the beacon is included in the message. Ambiguity has not been resolved because two independent (either from two Doppler solutions or from a Doppler solution and an encoded solution) sources of position information were not available.

```
                    Message Administration Block
```

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon located first alert can also be referred to as a SIT 161.

```
                         Alert Data Block
```

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms each have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

```
                        Support Data Block
```

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

Two
examples of 406 beacon located first alerts are provided, one without encoded location data and one with encoded location data.

```
/62146 00000/3660/98 046 0105
/161/366O


***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)  **********

BEACON ID: ADCD0 16672 C0401     SITE ID: 73326

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT   SOURCE   SRR   /BUFFER
50    A    28 25.6N 100 12.3W  15 0045 FEB  S3    SSE      CGD08 /AFRCC
50    B    28 35.6N 072 18.3W  15 0045 FEB  S3    SSE      CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY    : USA            CRAFT ID   : WAQ7615
MID CODE   : 366            HOMING     : 121.5 MHZ
MANUFACTURER: LITTON        MODEL      : 948-000001
SERIAL NUM : 23456          BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE        HOME TEL: 813-934-4657
       TARPON SPRINGS      FL    WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD           ELROY LEONARD
          HOME TEL: 813-937-0987  HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465  WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER            LENGTH OVERALL (FT):   75
COLOR: GRAY                    CAPACITY:  8
RADIO CALL SIGN: WAQ7615       REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT    INMARSAT NUMBER:

HOME PORT: RICK'S MARINA       SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON           MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993    DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    15 0200 FEB  S3   SSE     HIGH
A    15 0239 FEB  C4   OSE     LOW (WILL NOT COUNT AS MISSED PASS)
B    15 0200 FEB  S3   SSE     HIGH
B    15 0240 FEB  C6   TX1     HIGH
```

```
***** INCIDENT FEEDBACK REPORT FOR 406 ALERT,  FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401  DETECT TIME: 15 0045 FEB      SITE ID: 73324
CALCULATED A LAT: 28 25.6N    LONG: 100 12.3W
CALCULATED B LAT: 28 35.6N    LONG: 072 18.3W


CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION?  YES / NO

COSPAS-SARSAT FIRST NOTIFICATION?  YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY?  YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

RESCUED:        TOTAL INVOLVED:

ACTUAL LOCATION  LAT:        LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT  TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT_____ CUTTER_____ HELO_____ FIXED WING_____ CAP_____ OTHER_____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT?  YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO
REMARKS:
```

3-31

```
QQQQ
/LASSIT
/ENDMSG
```

```
/62146 00000/3660/98 046 0105
/161/366O


***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED)  **********

BEACON ID: ADCD0 16672 C0401     SITE ID: 73326

*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR  /BUFFER
N/A   E    28 34.3N 072 12.4W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY    : USA            CRAFT ID   : WAQ7615
MID CODE   : 366            HOMING     : 121.5 MHZ
MANUFACTURER: LITTON        MODEL      : 948-000001
SERIAL NUM : 23456          BEACON TYPE: MARITIME

******************  USMCC REGISTRATION DATABASE INFORMATION  ****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE           HOME TEL: 813-934-4657
       TARPON SPRINGS      FL       WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD              ELROY LEONARD
          HOME TEL: 813-937-0987   HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465   WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER              LENGTH OVERALL (FT):   75
COLOR: GRAY                      CAPACITY:   8
RADIO CALL SIGN: WAQ7615         REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT      INMARSAT NUMBER:

HOME PORT: RICK'S MARINA         SHALLOTTE            NC
ALTERNATE PORT:

MANUFACTURER: LITTON             MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL   DETECT TIME  SAT   SOURCE  VISIBILITY
E     15 0200 FEB  S3    SSE     HIGH
E     15 0239 FEB  C4    OSE     LOW (WILL NOT COUNT AS MISSED PASS)
```

```
***** INCIDENT FEEDBACK REPORT FOR 406 ALERT,  FAX BACK TO 301-457-5406 *****

BEACON ID: ADCD0 16672 C0401  DETECT TIME: 15 0045 FEB      SITE ID: 73324
CALCULATED E LAT: 28 35.3N    LONG: 100 12.4W

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION?  YES / NO

COSPAS-SARSAT FIRST NOTIFICATION?  YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY?  YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

RESCUED:       TOTAL INVOLVED:

ACTUAL LOCATION  LAT:        LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT  TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT_____ CUTTER_____ HELO_____ FIXED WING_____ CAP_____ OTHER_____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT?  YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO
REMARKS:
QQQQ
/LASSIT
```

/ ENDMSG

3.7   406 Beacon Located First Alert Update (Ambiguity Unresolved) (SIT 162)

This message is transmitted whenever a "406 BEACON LOCATED FIRST ALERT" has been previously transmitted and additional information with an improved A/B probability split is received, yet the ambiguity between the A and B positions hasn't been resolved.

This message indicates that the location previously identified as the "B" side (or the less likely side), has now been identified to be more likely the "A" side (or the more likely side).

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon located first alert update can also be referred to as a SIT 162.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

Doppler solutions with improved A/B probability splits are provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the "A" location (the location more likely to be the real solution) or the "B" location. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two

digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

> *Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them*

> *The LATITUDE, LONGITUDE, DETECT TIME, and SouRCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.*

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

An
example of a 406 beacon located first alert is provided.

- Remainder of Page Blank -

```
/62146 00000/3660/98 046 0105
/162/366O


*******  406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED)  *******

BEACON ID: ADCD0 16672 C0401      SITE ID: 73326

****************  DETECTION TIME AND POSITIONS FOR THE BEACON  ***************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR  /BUFFER
90    A    28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
10    B    28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA          CRAFT ID   : WAQ7615
MID CODE    : 366          HOMING     : 121.5 MHZ
MANUFACTURER: LITTON       MODEL      : 948-000001
SERIAL NUM  : 23456        BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE         HOME TEL: 813-934-4657
       TARPON SPRINGS        FL   WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD              ELROY LEONARD
         HOME TEL: 813-937-0987    HOME TEL: 904-824-0532
         WORK TEL: 813-934-3465    WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER               LENGTH OVERALL (FT):    75
COLOR: GRAY                       CAPACITY:   8
RADIO CALL SIGN: WAQ7615          REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT       INMARSAT NUMBER:

HOME PORT: RICK'S MARINA          SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON              MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************


USMCC PROCESSING TIME: 15 0104 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07


PREVIOUS PASS INFORMATION:

PROB  SOL   LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR    /BUFFER
50    A     28 25.6N 100 12.3W  15 0045 FEB  S3   SSE     CGD08 /AFRCC
50    B     28 35.6N 072 18.3W  15 0045 FEB  S3   SSE     CGD07


Next time signal should be detected:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    15 0200 FEB  S3   SSE     HIGH
A    15 0239 FEB  C4   OSE     HIGH
B    15 0200 FEB  S3   SSE     HIGH
B    15 0240 FEB  C6   TX1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

3.8   406 Beacon Position Conflict Alert (Ambiguity Unresolved) (SIT 163)

This message is transmitted whenever Doppler or encoded positions differ by more than 50 kilometers from a position reported in a previous alert message [or within this alert message] prior to ambiguity resolution. This is an indication that one or more of the positions is inaccurate.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon position conflict alert can also be referred to as a SIT 163.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

The position(s) that differs from one(s) provided in a previously sent alert message is(are) provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the "A" location (the location more likely to be the real solution) or the "B" location. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

<div style="border:1px solid black; text-align:center">Beacon Decode Data Block</div>

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

<div style="border:1px solid black; text-align:center">Beacon Registration Data Block</div>

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

<div style="border:1px solid black; text-align:center">Support Data Block</div>

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS

INFORMATION may contain information for an unlocated alert which was previously transmitted.

Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them

The LATITUDE, LONGITUDE, DETECT TIME, and SouRCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.

Note, that although the following labels are provided on the alert message, the information is not applicable for position conflict messages.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

*A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

Two
examples of 406 beacon position conflict alerts are provided.

- Remainder of Page Blank -

```
/62150 00000/3660/98 047 1810
/163/366H


*******  406 BEACON POSITION CONFLICT (AMBIGUITY UNRESOLVED)  *******

BEACON ID: ADCD0 16672 C0401      SITE ID: 71423

******  POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON  *******

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR  /BUFFER
90    A    23 25.6N 169 12.3W  16 1759 FEB  S3   CA2     CGD14
10    B    26 35.6N 121 16.9W  16 1759 FEB  S3   CA2     PACAR

or

N/A   E    28 34.5N 072 12.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA            CRAFT ID   : WAQ7615
MID CODE    : 366            HOMING     : 121.5 MHZ
MANUFACTURER: LITTON         MODEL      : 948-000001
SERIAL NUM  : 234567         BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE         HOME TEL: 813-934-4657
       TARPON SPRINGS       FL    WORK TEL: 813-934-5678
       34689    USA

CONTACTS: DAN LEONARD              ELROY LEONARD
          HOME TEL: 813-937-0987   HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465   WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER               LENGTH OVERALL (FT):   75
COLOR: GRAY                       CAPACITY:   8
RADIO CALL SIGN: WAQ7615          REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT       INMARSAT NUMBER:

HOME PORT: RICK'S MARINA          SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON              MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 16 1809 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, CGD14, AFRCC, CGD13

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD14, AFRCC, CGD13

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE  LONGITUDE   DETECT TIME   SAT   SOURCE   SRR    /BUFFER
50     A     23 23.4N 123 23.3W  16 1700 FEB   S3    TX1      PACAR
50     B     24 26.3N 098 45.7W  16 1700 FEB   S3    TX1      AFRCC
80     A     18 57.9N 167 23.6W  16 1734 FEB   C6    HI1      CGD14
20     B     39 45.9N 134 56.4W  16 1734 FEB   C6    HI1      CGD13

Next time signal should be detected: N/A

QQQQ
/LASSIT
/ENDMSG
```

```
/62150 00000/3660/98 047 1810
/163/366H


*******  406 BEACON POSITION CONFLICT (AMBIGUITY UNRESOLVED)  *******

BEACON ID: ADCD0 16672 C0401      SITE ID: 71423

****** POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON  *******

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR  /BUFFER
90    A    23 25.6N 169 12.3W  16 1759 FEB  S3   CA2     CGD14
10    B    26 35.6N 121 16.9W  16 1759 FEB  S3   CA2     PACAR
N/A   E    28 34.5N 072 12.3W  15 0045 FEB  S3   SSE     CGD07

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA           CRAFT ID   : WAQ7615
MID CODE    : 366           HOMING     : 121.5 MHZ
MANUFACTURER: LITTON        MODEL      : 948-000001
SERIAL NUM  : 234567        BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE          HOME TEL: 813-934-4657
       TARPON SPRINGS        FL    WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD              ELROY LEONARD
          HOME TEL: 813-937-0987   HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465   WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER             LENGTH OVERALL (FT):    75
COLOR: GRAY                     CAPACITY:   8
RADIO CALL SIGN: WAQ7615        REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT     INMARSAT NUMBER:

HOME PORT: RICK'S MARINA        SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON            MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993


REMARKS:
```

```
*********************  SUPPORTING INFORMATION  **************************


USMCC PROCESSING TIME: 16 1809 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, CGD14, AFRCC, CGD13


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD14, AFRCC, CGD13


PREVIOUS PASS INFORMATION:


PROB  SOL  LATITUDE  LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    23 23.4N 123 23.3W  16 1700 FEB  S3   TX1     PACAR
50    B    24 26.3N 098 45.7W  16 1700 FEB  S3   TX1     AFRCC
80    A    18 57.9N 167 23.6W  16 1734 FEB  C6   HI1     CGD14
20    B    39 45.9N 134 56.4W  16 1734 FEB  C6   HI1     CGD13


Next time signal should be detected: N/A


QQQQ
/LASSIT
/ENDMSG
```

3.9   406 Beacon Notification of Ambiguity Resolution (SIT 164)

This message is transmitted whenever the ambiguity of a beacon's position is resolved. Previous messages may have been sent or ambiguity may be resolved using the doppler and encode positions in this alert. Only the valid position ("A", "B", or "E") within a given SRR (or buffer zone) is included in the message.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon notification of ambiguity resolution can also be referred to as a SIT 162.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

This message provides the composite LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon are also provided.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The
following data is provided for the elemental alert which enabled the system to resolve ambiguity:

The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. In this case the PROBability is provided for what was determined to be the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability.

The SOLution identifies whether the "A" or the "B" was the real solution. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are also provided.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number

of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms all have different formats. The EPIRB format is listed in this example. Appendix 2 contains sample formats for EPIRBs, ELTs, and PLBs.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

> *Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them*

> *The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.*

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon notification of ambiguity resolution is provided on the next page.

```
/61243 00000/3660/98 048 0615
/164/366S


*************** 406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION  *************

BEACON ID: ADCD1 76322 C0801     SITE ID: 73321

***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION  ***************

LATITUDE LONGITUDE  DURATION   PASSES  SRR   /BUFFER
38 45.5N 076 56.9W  001.5 HRS  003     AFRCC

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION  **********

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A    E    38 43.2N 076 52.3W  17 0545 FEB  S3   PR1

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA           CRAFT ID   : WAQ7615
MID CODE    : 366           HOMING     : 121.5 MHZ
MANUFACTURER: LITTON        MODEL      : 948-000001
SERIAL NUM  : 234567        BEACON TYPE: MARITIME

*****************  USMCC REGISTRATION DATABASE INFORMATION  *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE        HOME TEL: 813-934-4657
       TARPON SPRINGS       FL   WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD             ELROY LEONARD
          HOME TEL: 813-937-0987  HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465  WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER              LENGTH OVERALL (FT):   75
COLOR: GRAY                      CAPACITY:  8
RADIO CALL SIGN: WAQ7615         REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT      INMARSAT NUMBER:

HOME PORT: RICK'S MARINA         SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON             MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
*********************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 17 0613 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, FMCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, FMCC

PREVIOUS PASS INFORMATION:

PROB  SOL   LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
50    A     38 42.4N 077 00.3W  17 0430 FEB  S4   SSE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 0713 FEB  S3   SSE     HIGH
C    17 0824 FEB  S3   OSE     HIGH

QQQQ
/LASSIT
/ENDMSG
```

3.10   406 Beacon Composite Position Update (SIT 165); or
406 Beacon Composite Update with Position Conflict (SIT 165)

This message can have one of two headers, depending on whether or not there is a position conflict with the previous resolved position.

Message Administration Block

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon composite position update or update with position conflict can also be referred to as a SIT 165.

Alert Data Block

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

This message provides the composite LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon are also provided.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The following data is provided for the elemental alert which updated the composite position:

The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. In this case the PROBability is provided for what was determined to be the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability.

The SOLution identifies whether the "A" or the "B" was the real solution. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are also provided.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

> *Note to whom beacon alert messages have previously been sent. They may have already done some investigative work on the beacon, so you may be able to obtain additional information from them*

> *The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.*

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon composite update and a 406 beacon composite update with position conflict are provided.

```
/61243 00000/3660/98 048 1214
/165/366A


******************** 406 BEACON COMPOSITE POSITION UPDATE ******************

BEACON ID: ADCD0 16672 C0401     SITE ID: 73321

******************** POSITION UPDATED TO THE FOLLOWING *******************

LATITUDE LONGITUDE   DURATION    PASSES   SRR   /BUFFER
64 12.8N 149 23.0W   014.3 HRS   006      AKRCC

***************** POSITION UPDATED FROM THE FOLLOWING ALERT ****************

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE
10     B     64 13.6N 149 24.1W   17 1151 FEB   S3    CMCC
N/A    E     64 12.2N 149 23.3W   17 1151 FEB   S3    CMCC

************ BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION **********

COUNTRY     : USA             CRAFT ID   : WAQ7615
MID CODE    : 366             HOMING     : 121.5 MHZ
MANUFACTURER: LITTON          MODEL      : 948-000001
SERIAL NUM  : 234567          BEACON TYPE: MARITIME
```

```
************************  SUPPORTING INFORMATION  **************************


USMCC PROCESSING TIME: 17 1143 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07


PREVIOUS PASS INFORMATION:


PROB  SOL   LATITUDE LONGITUDE   DETECT TIME  SAT  SOURCE
50    A     64 12.9N 148 23.3W  17 1023 FEB   S3   AK1
90    A     64 11.9N 152 11.9W  17 0400 FEB   S4   CMCC


NEXT TIME SIGNAL SHOULD BE DETECTED:


SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
C     17 1300 FEB   C6    AK1      HIGH
C     17 1539 FEB   S4    AK1      HIGH


QQQQ
/LASSIT
/ENDMSG
```

```
/61243 00000/3660/98 048 1214
/165/366A


************  406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT  ************

BEACON ID: ADCD0 16672 C0401      SITE ID: 73321

********************  POSITION UPDATED TO THE FOLLOWING  ********************

LATITUDE LONGITUDE  DURATION   PASSES   SRR  /BUFFER
64 12.8N 149 23.0W  014.3 HRS  006      AKRCC

*** COMPOSITE POSITION DIFFERS BY MORE THAN 50 KM FROM THE FOLLOWING ALERT ***

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
10    B    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC
N/A   E    64 12.2N 149 23.3W  17 1151 FEB  S3   CMCC

************  BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION  **********

COUNTRY     : USA            CRAFT ID   : WAQ7615
MID CODE    : 366            HOMING     : 121.5 MHZ
MANUFACTURER: LITTON         MODEL      : 948-000001
SERIAL NUM  : 234567         BEACON TYPE: MARITIME
```

```
************************  SUPPORTING INFORMATION  **************************


USMCC PROCESSING TIME: 17 1143 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07


PREVIOUS PASS INFORMATION:


PROB  SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE
50    A     64 12.9N 148 23.3W   17 1023 FEB   S3    AK1
90    A     64 11.9N 152 11.9W   17 0400 FEB   S4    CMCC


NEXT TIME SIGNAL SHOULD BE DETECTED:


SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
C     17 1300 FEB   C6    AK1      HIGH
C     17 1539 FEB   S4    AK1      HIGH


QQQQ
/LASSIT
/ENDMSG
```

3.11   406 Beacon Missed Pass/Site Status Report (SIT 166)

This message is transmitted when a satellite pass (at least 5 degrees above the horizon to the "A', "B", composite or encoded position) fails to detect the beacon. This message is also used to indicate when a site closes.

<div style="border:1px solid black; text-align:center; padding:10px;">Message Administration Block</div>

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon missed pass/site status report can also be referred to as a SIT 166.

<div style="border:1px solid black; text-align:center; padding:10px;">Alert Data Block</div>

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon. In addition, the number of missed passes and the status of the site (closed or not) are listed. The method used to close the site (time or number of missed passes) is also listed.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

This message provides the first alert unresolved or the ambiguity resolved LATITUDE and LONGITUDE position in degrees, minutes, tenths of minutes and hemisphere. If ambiguity has been resolved for the site the DURATION is provided. The DURATION is the length of time the signal has been considered active. For consistency, the time period is measured referencing the time at which a satellite was closest to a signal source, or Time of Closest Approach (TCA). It is the amount of time between the first satellite pass TCA and the most recent or last satellite pass TCA. The number of satellite PASSES that detected the beacon are also provided.

If ambiguity has not been resolved for the site, the DETECT TIME is provided in date-time group in Zulu time (UTC), and the SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number.

For unresolved sites and resolved sites the SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

The Missed Pass (MP) counter provides the number of passes that have *not* detected the beacon as determined by the USMCC. For sites where ambiguity has been resolved, the counter only references the resolved position. For sites where ambiguity has not been resolved, the first alert positions (A, B or E) will have independent counters.

The DETECT TIME at which the beacon should have been detected, along with the SATellite and the SOURCE (the Local User Terminal (LUT) that should have detected the beacon) are provided.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

> *The LATITUDE, LONGITUDE, DETECT TIME, and SOURCE fields for a given previous alert may change from message to message. This is due to the fact that additional information for a specific satellite pass may come in from other sources even after you receive a message from the USMCC. Most often, you will receive a message as soon as the first piece of data comes in from a US LUT or Foreign MCC. As other data from the same satellite pass comes in, the file is updated but no new messages are sent as long as the information is essentially the same. The most common change you will observe will be when the SouRCE of the data changes from a single source to MULTIple sources - this will usually result in a slight change in the position and DETECT TIME.*

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made

features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Three examples of 406 beacon missed pass/site status reports are provided.

- Remainder of Page Blank -

```
/61243 00000/3660/98 048 1330
/166/366A


****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ***************

BEACON ID: ADCD0 16672 C0401       SITE ID: 73321 (OPEN)
*************************  CURRENT ACTIVE SITE  **************************


LATITUDE LONGITUDE   DURATION   PASSES   SRR   /BUFFER   MP
64 12.8N 149 23.0W  014.3 HRS   006      AKRCC             1

************* ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME   SAT SOURCE
17 1300 FEB   C6   AK1
```

```
************************  SUPPORTING INFORMATION  **************************


USMCC PROCESSING TIME: 17 1330 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CMCC


PREVIOUS PASS INFORMATION:

PROB  SOL   LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A     64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A     64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC
N/A   E     64 17.4N 149 23.3W  16 2345 FEB  C4   AK2     AKRCC


NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL   DETECT TIME  SAT  SOURCE  VISIBILITY
C     17 1539 FEB  C6   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
C     17 1735 FEB  S4   AK1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

```
/61243 00000/3660/98 048 1330
/166/366A

****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ***************

BEACON ID: ADCD0 16672 C0401     SITE ID: 73321 (OPEN)

************************  CURRENT ACTIVE SITE  **************************

SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER   MP
A     64 13.6N 149 24.1W   17 1151 FEB   S3    CMCC     AKRCC           1

************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME   SAT SOURCE
17 1300 FEB   C6  AK1
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
50     A     64 12.9N 148 23.3W   17 1023 FEB   S3    AK1      AKRCC
90     A     64 11.9N 152 11.9W   17 0400 FEB   S4    CMCC     AKRCC
N/A    E     64 17.4N 149 23.3W   16 2345 FEB   C4    AK2      AKRCC

NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
A     17 1539 FEB   C6    AK1      HIGH
A     17 1739 FEB   S4    AK1      LOW (WILL NOT COUNT AS MISSED PASS)

QQQQ
/LASSIT
/ENDMSG
```

```
/61243 00000/3660/98 048 1330
/166/366A


****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ****************

BEACON ID: ADCD0 16672 C0401       SITE ID: 73321 (CLOSED - MISSED PASS)
*************************  CURRENT ACTIVE SITE  **************************


LATITUDE LONGITUDE   DURATION   PASSES   SRR   /BUFFER   MP
64 12.8N 149 23.0W  014.3 HRS   006      AKRCC             3

************* ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME   SAT SOURCE
17 1800 FEB   C6   AK1
```

```
************************  SUPPORTING INFORMATION  *************************


USMCC PROCESSING TIME: 17 1830 FEB


THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC


ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        AFRCC, CMCC


PREVIOUS PASS INFORMATION:

PROB  SOL   LATITUDE  LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
50    A     64 12.9N 148 23.3W   17 1023 FEB   S3    AK1      AKRCC
90    A     64 11.9N 152 11.9W   17 0400 FEB   S4    CMCC     AKRCC
N/A   E     64 17.4N 149 23.3W   16 2345 FEB   C4    AK2      AKRCC


NEXT TIME SIGNAL SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
C     17 2039 FEB   C6    AK1      LOW (WILL NOT COUNT AS MISSED PASS)
C     17 2135 FEB   S4    AK1      HIGH



QQQQ
/LASSIT
/ENDMSG
```

3.12   406 Beacon Detection Update (SIT 167)

This message is transmitted when a 406 unlocated alert causes the missed pass counter to be reset or is at least two hours after the last detection reported to the RCC.

```
┌─────────────────────────────────────────────────────────┐
│                Message Administration Block              │
└─────────────────────────────────────────────────────────┘
```

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon detection updated can also be referred to as a SIT 167.

```
┌─────────────────────────────────────────────────────────┐
│                     Alert Data Block                     │
└─────────────────────────────────────────────────────────┘
```

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

The unlocated alert which updated the active site is provided. As there is no location information, the PROBability, SOLution, LATITUDE and LONGITUDE are not available. The DETECT TIME is provided in date-time group in Zulu time (UTC), and the SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two digits are the satellite number. The SOURCE is the local user terminal (LUT) or MCC that detected the beacon.

```
┌─────────────────────────────────────────────────────────┐
│                    Support Data Block                    │
└─────────────────────────────────────────────────────────┘
```

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS

INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

*A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

An example of a 406 beacon detection updated is provided on the next page.

```
/61243 00000/3660/98 048 1330
/167/366A


*********************** 406 BEACON DETECTION UPDATE ***********************

BEACON ID: ADCD0 16672 C0401            SITE ID: 73321

************** DETECTION UPDATE DUE TO FOLLOWING UNLOCATED ALERT *************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   N/A  N/A                 17 1300 FEB  C6   AK1

************************* SUPPORTING INFORMATION ************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AKRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AKRCC

PREVIOUS PASS INFORMATION:

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A    64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC
N/A   E    64 17.4N 149 23.3W  16 2345 FEB  C4   AK2     AKRCC

Next time signal should be detected:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1539 FEB  C6   AK1     HIGH
C    17 1739 FEB  S4   AK1     HIGH


QQQQ
/LASSIT
/ENDMSG
```

3.13   USA 406 Beacon Detected Outside US AOR (SIT 168)

This message is transmitted whenever a United States county coded beacon is detected outside the US Area of Responsibility (AOR). The data for this alert message may have originated at a foreign MCC or a national LUT. The beacon ID, the two calculated positions or the encoded position, and any other available information about the beacon is included in the message. This is the only message which will be transmitted to the RCC unless specific arrangements are made at the USMCC to add the RCC to the distribution for subsequent alerts.

```
                    Message Administration Block
```

The message administration block does not contain any labels. This block provides the current and original message numbers for this message to the RCC. Current message numbers are sequential to enable message tracking by RCCs. The original message number will be listed if the current message is a retransmission of a previous message.

Other information provided in this block includes the reporting MCC of the alert (the code for the USMCC is 3660), the time the message was transmitted, the Subject Indicator Type (SIT), the destination RCC, and the message title. The Subject Indicator Type is a numerical identifier for a specific type of message, thus a 406 beacon detected outside the US AOR can also be referred to as a SIT 168.

```
                            Alert Data Block
```

This block starts by providing the BEACON ID which identifies the 15 character hexa-decimal identifier and the five digit USMCC SITE ID for the 406 MHz beacon.

> *For location protocol beacons (i.e., beacons with a GPS/navigation input) the BEACON ID represents the digital message with the location bits defaulted. This ensures that everyone involved refers to the same beacon even if the position is changing.*

The real and image Doppler solutions or the encoded solution is provided. The PROBability is provided for Doppler solutions only. It is the probability that the corresponding solution is the real solution. Encoded solutions are obtained from a GPS source or other navigation device, not derived from Doppler processing. Therefore, they do not have a corresponding probability. The SOLution identifies whether the corresponding solution is the "A" location (the location more likely to be the real solution) or the "B" location. An "E" identifies the solution as an encoded solution. The LATITUDE and LONGITUDE of the Doppler and/or encoded position(s) are provided in degrees, minutes, tenths of minutes and hemisphere.

The DETECT TIME is given as a date-time group in Zulu time (UTC). The SATellite which detected the beacon is identified by three characters. The first character identifies the type of satellite ("C" for Cospas, "S" for Sarsat, "G" for GOES, and an "I" for Insat), the remaining two

digits are the satellite number. The SOURCE is listed as the Local User Terminal (LUT) or MCC which provided the data.

The SRR is the search and rescue region in which the alert falls is listed. If the alert falls in a BUFFER zone, the adjacent SRR is listed as well. If an alert falls in the BUFFER zone for three or more SRRs, it will be properly routed, but the messages received at each RCC will list only one BUFFER zone.

> *When the A/B probability split between two solutions is 50/50, the beacon could mathematically be in either location. Plot the locations and look at the beacon decode and registration data; this information usually allows you to determine which is the actual position.   50/50 solutions also tend to be less accurate.*

Beacon Decode Data Block

The information in this block is automatically decoded from the transmitted 406 MHz digital message. The information can be derived from, or linked to the bits contained in the 406 MHz digital message.

The COUNTRY field identifies the country, nationality, state or territory associated with the beacon. It identifies the country that maintains registration information for the beacon. The MID CODE is the three digit code assigned by the International Telecommunications Union, this code corresponds to the COUNTRY.

The MANUFACTURER, and MODEL number of the beacon is provided for beacons that are coded with a United States serialized protocol. The SERIAL NUMber is the unique serial number of the beacon. The CRAFT ID contains the encoded radio call sign, MMSI number, aircraft tail number, registration marking, 24-bit aircraft address, or aircraft operator designator. HOMING identifies the frequency and type of homer on the beacon. BEACON TYPE identifies the type (i.e., EPIRB, ELT or PLB) of the beacon, as well as the coding scheme.

Beacon Registration Data Block

This block provides the data stored in the USMCC Registration Database. All information available in the database is automatically provided here. The remarks section will contain any special notes as a result of feedback from the owner, United States Coast Guard, United States Air Force, or other responding agency, which amplifies the registration information. Refer to Appendix 1 for further information.

Support Data Block

This block provides supporting information about this alert message and any other alert messages sent concerning this beacon. The USMCC PROCESSING TIME is given as a date-time group in Zulu time (UTC).

Destinations that THIS particular ALERT MESSAGE IS BEING SENT TO are identified. ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO contains information on all destinations that previously received alert messages for this beacon. PREVIOUS PASS INFORMATION may contain information for an unlocated alert which was previously transmitted.

The NEXT TIME SIGNAL SHOULD BE DETECTED indicates the next two satellite passes that should detect the beacon SOLution. Next pass prediction is based on mutual visibility between the beacon, a polar orbiting satellite, and a United States LUT which is scheduled to track that particular satellite pass. The DETECT TIME is the date-time that the next scheduled pass is to pass over the beacon. The SAT is the next satellite to pass over the beacon, and SOURCE is the LUT scheduled to track that pass.

The VISIBILITY of a satellite varies based on the elevation of the satellite above the horizon (relative to both the signal source and the LUT antenna) and the geographic and man-made features in the vicinity of the LUT antenna. In general, satellite passes with elevation angles between 5 and 90 degrees above the horizon provide usable data.

Satellite passes where the elevation angle is at least 10 degrees are termed "HIGH" passes. A high satellite pass over a reported signal source which fails to detect the signal is referred to as a "MISSED PASS" and a message will be sent to the RCC advising them of the missed pass. Satellite passes where the elevation angle is between 5 and 10 degrees are termed "LOW" passes.

Satellite passes where the elevation angle is less than 5 degrees are not listed as predicted passes. If such a pass were to detect the signal, the information would be passed to the RCC.

> *A low satellite pass over a reported signal source which fails to detect the signal is **not** a missed pass, thus a missed pass report will not be sent to the RCC.*

Incident Feedback Report

Each 406 site requires documentation in order to identify opportunities to improve beacon design, beacon usage, regulation, information processing and alert response. The United States Air Force, United States Coast Guard, and NOAA have worked together to establish the minimum information required to improve the system; the incident feedback report requests this information from the RCCs which were involved in response to a given beacon alert. The guidelines contained at Appendix A will facilitate completing the Incident Feedback Report.

> *The SAR Mission Coordinator (SMC) is usually best qualified to complete the Incident Feedback Report.*

An
example of a 406 beacon detected outside the US AOR message is provided on the next page.

- Remainder of Page Blank -

```
/61246 00000/3660/98 046 0105
/168/366N


****************** USA 406 BEACON DETECTED OUTSIDE US AOR *****************

BEACON ID: ADCD0 16672 C0401     SITE ID: 73326

***************** DETECTION TIME AND POSITIONS FOR THE BEACON **************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR  /BUFFER
50    A    08 25.6N 097 12.3E  15 0045 FEB  S3   SSE     INMCC
50    B    09 35.6N 147 18.3E  15 0045 FEB  S3   SSE     HKMCC

************ BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION *********

COUNTRY    : USA             CRAFT ID   : WAQ7615
MID CODE   : 366             HOMING     : 121.5 MHZ
MANUFACTURER: LITTON         MODEL      : 948-000001
SERIAL NUM : 234567          BEACON TYPE: MARITIME

***************** USMCC REGISTRATION DATABASE INFORMATION *****************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE          HOME TEL: 813-934-4657
       TARPON SPRINGS       FL     WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD                ELROY LEONARD
          HOME TEL: 813-937-0987     HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465     WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER             LENGTH OVERALL (FT):   75
COLOR: GRAY                     CAPACITY:  8
RADIO CALL SIGN: WAQ7615        REGISTRATION NO: 636170
RADIO EQP: VHF-FM, INMARSAT     INMARSAT NUMBER:

HOME PORT: RICK'S MARINA        SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON            MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        LANTAR, PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        INMCC, HKMCC

PREVIOUS PASS INFORMATION: N/A

NEXT TIME SIGNAL SHOULD BE DETECTED: N/A


QQQQ
/LASSIT
/ENDMSG
```

```
**** INCIDENT FEEDBACK REPORT FOR 406 ALERT,  FAX BACK TO 301-457-5406 *******

BEACON ID: ADCD0 16672 C0401   DETECT TIME: 15 0045 FEB        SITE ID: 73326
CALCULATED A LAT: 08 25.6N    LONG: 097 12.3E
CALCULATED B LAT: 09 35.6N    LONG: 147 18.3E

CEASED / DISTRESS / NON-DISTRESS

INCIDENT/MISSION/ CASE NUMBER:

INCIDENT/MISSION/ CASE START TIME:

COSPAS-SARSAT ONLY NOTIFICATION?  YES / NO

COSPAS-SARSAT FIRST NOTIFICATION?  YES / NO

COSPAS-SARSAT USED FOR LOCATION ONLY?  YES / NO

STATE OR GENERAL LOCATION:

TIME RESCUE FORCES ARRIVED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

RESCUED:        TOTAL INVOLVED:

ACTUAL LOCATION  LAT:        LONG:

HOW DETERMINED:
 LORAN / OMEGA / VOR / VOR-DME / TACAN / SATNAV / GPS / CHART / OTHER

HOW ACTIVATED:
 AUTOMATIC / MANUAL / USER-ERROR / BEACON-PROBLEM / BRACKET FAILURE

WHY ACTIVATED: DISTRESS / TEST / OTHER

VESSEL/AIRCRAFT  TYPE AND NAME:

HOURS OF RESOURCE ALLOCATED:
BOAT_____ CUTTER_____ HELO_____ FIXED WING_____ CAP_____ OTHER_____

TIME ALERT DETERMINED TO BE A FALSE ALARM OR RESOURCE LAUNCHED (GMT):
_____/_____/_____/_____:_____ (YY/MM/DD/HH:MM)

GEOSAR DATA USED TO RESOLVE INCIDENT?  YES / NO

BEACON MANUFACTURER: LITTON

BEACON MODEL:

BEACON TYPE: MARITIME FLOAT-FREE

WAS 406 BEACON REGISTRATION DATA USED TO RESOLVE INCIDENT: YES / NO

REMARKS:
```

```
QQQQ
/LASSIT
/ENDMSG
```

4　　Support Messages

The following sections contain an explanation of the different support messages. The explanation is followed by an example of the support message. Definitions for the different elements, or fields, in support messages are provided in Appendix 1.

4.1　　Narrative Message (SIT 950)

This message is used to transmit a free format message from the MCC to the RCC. It is also used to indicate changes in System status. These changes include satellite, LUT or MCC failures, scheduled maintenance, and the integration or testing of new elements. An example is provided below.

```
/00126 00000/3660/98 046 0105
/950/366J

THIS IS A FREE FORMAT MESSAGE

QQQQ
/LASSIT
/ENDMSG
```

4.2   Alert Query Reports (SIT 951)

This message is sent in response to an RCC's request for information concerning alert activity in a specific area or for a specific beacon. The USMCC will retrieve all Cospas-Sarsat alerts for a specified time period, geographical area or beacon identity (for 406 MHz beacons). There are three levels of information which can be retrieved. Level 1 queries provide a summary of all active or closed sites. Level 2 queries provide Level 1 information as well as a summary of each satellite pass over the beacon or signal. Level 3 queries provide Level 2 information as well as a detailed listing of all information for each Site ID.

4.2.1. Level One: Alert Query Report

Level One reports provide high level information to the RCCs and SPOCs. It provides the RCC/SPOC with an overview of alert activity in a certain area (defined by region and time) or beacon activity (based on a Beacon ID and time). Sufficient detail is provided for the search planner to make specific requests for detailed alert information. The following is a sample report for a radius query.

```
/58231 00000/3660/99 245 1827
/951/366X
/
                        SEARCH CRITERIA
CENTER POSITION: NONE            RADIUS:         NONE
NORTH BOUNDARY:  NONE            EAST BOUNDARY: NONE
SOUTH BOUNDARY:  NONE            WEST BOUNDARY: NONE
REPORT START:    02 1418 SEP 99  REPORT END:  02 1818 SEP 99
SEARCH FREQ:     406             SITE ID:       N/A
BEACON ID:       N/A             COUNTRY CODE:  N/A
MMSI, SHIP CALL SIGN, OR AIRCRAFT REGISTRATION:  N/A


                        SEARCH RESULTS
LATITUDE LONGITUDE FIRST TCA   DUR FREQ SWP SITE/BEACON ID
                   02 1111 SEP 0.0  406 UNK ADCD020A8440801
62 00.3N 005 15.1E 02 1057 SEP 0.1  406 UNK A068A29C34D34D1
21 29.5S 012 35.8E 02 1145 SEP 1.7  406 UNK CF8A4C29F7040D1
23 07.8S 017 03.4W 02 1145 SEP 1.7  406 UNK CF8A4C29F7040D1

QQQQ
/LASSIT
/ENDMSG
```

4.2.2 Level Two: Alert Query Detail Report

Level Two reports provide detailed information regarding specific alerts. This report provides the RCC/SPOC with both an overview of alert activity in a certain area (defined by region and time) or beacon activity (based on Beacon ID and time) and the details for each alert. This report can be lengthy based on the search criteria. This following is an example of a Level Two report.

```
/58205 00000/3660/99 245 1822
/951/366X
/
                        SEARCH CRITERIA
CENTER POSITION: NONE            RADIUS:        NONE
NORTH BOUNDARY:  NONE            EAST BOUNDARY: NONE
SOUTH BOUNDARY:  NONE            WEST BOUNDARY: NONE
REPORT START:    02 1418 SEP 99  REPORT END:  02 1818 SEP 99
SEARCH FREQ:     406             SITE ID:      N/A
BEACON ID:       N/A             COUNTRY CODE:  N/A
MMSI, SHIP CALL SIGN, OR AIRCRAFT REGISTRATION:  N/A

                        SEARCH RESULTS
LATITUDE LONGITUDE FIRST TCA   DUR FREQ SWP SITE/BEACON ID
62 00.3N 005 15.1E 02 1057 SEP 0.1  406 UNK A068A29C34D34D1

                        DETAIL INFORMATION
BEACON ID:     A068A29C34D34D1       SITE ID:     16056

SITE CREATED:        02 1226 SEP 99 SITE CLOSED: N/A
FIRST TCA:           02 1057 SEP 99 LAST TCA:    02 1103 SEP 99
LAST DATA PROCESSED: 02 1759 SEP 99 PASSES:      2

REASON CLOSED:
MESSAGE DESTINATIONS: UKMCC, NMCC, CMCC


                    DETECTION TIME AND POSITIONS
SOL LATITUDE LONGITUDE DETECT TIME    SAT SOURCE
B   62 00.1N 005 17.2E 02 1057 SEP    C4  CMC
B   62 00.6N 005 05.5E 02 1103 SEP    C8  AUMCC

            BEACON NOT DETECTED ON FOLLOWING PASSES
DETECT TIME SAT SOURCE MISSPASS

                    NEXT PASS INFORMATION
SITE ID SOL   DETECT TIME   SAT SOURCE VISIBILITY
5C16056  C    02 1844 SEP   S4    AK2     HIGH
5C16056  C    02 2025 SEP   S4    AK2     HIGH


QQQQ
/LASSIT
/ENDMSG
```

4.2.3 Level Three: Alert Query Analyst Report

Level Three reports are designed for in-depth analysis only. These reports provide all the data available at the USMCC for a particular Beacon activation or Site ID. Normally these reports will be used by analysts at the USMCC to investigate system anomalies, and may also be appropriate for Search and Rescue Case studies conducted by the Air Force, the Coast Guard or other responding agencies. Proper interpretation of the data provided in Level Three reports will require system documentation and some training and familiarization. Site files can be extremely large, so caution should be exercised before requesting this information over the printer. This information can also be provided on electronic media (e.g., diskette, FTP). The following is an example of a Level Three report.

[TBD]

4.3   406 Beacon Registration (SIT 952)

This message is used to transmit 406 MHz beacon registration information to RCCs. An example is provided below.

```
/58223 00000/3660/99 245 1820
/952/366X
/
BEACON ID: ADCD0 21C38 C1C01

OWNER: MISS ROBBIE INC
      PO DRAWER F                  HOME TEL: 504-534-2244
      VENICE   LA                  WORK TEL: 504-534-2394
      70091         USA

CONTACTS: SUSAN P LUCKIE            JOYCE L YO
        HOME TEL: 504-534-2244      HOME TEL: 504-534-9383
        WORK TEL: 504-534-2394      WORK TEL: 504-534-2394

CELLULAR NUMBER:

VESSEL NAME: MISS ROBBIE
TYPE:                              LENGTH OVERALL (FT): 9
COLOR: BLUE/WHITE                  CAPACITY: 49
REGISTRATION: 541398               RADIO CALL SIGN: WYZ7820
INMARSAT NUMBER:                   RADIO EQP: VHF/MF

HOME PORT:                         VENICE      LA
ALTERNATE PORT:

MANUFACTURER: ACR                 MODEL NUMBER: RLB-27
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

FIRST REGISTERED: 14 DEC 1998    DECAL EXPIRES: 14 DEC 2000
LAST UPDATED: 14 DEC 1998

REMARKS:



QQQQ
/LASSIT
/ENDMSG
```

4.4 Beacon-LUT Mutual Visibility Schedule (SIT 953)

This message is used to transmit a list of passes over a specified beacon, a point, or active site that will have mutual visibility with a US LUT.

```
/58224 00000/3660/99 245 1828
/953/366X
/
NEXT TIME SIGNAL SHOULD BE DETECTED FOR POSITION 33 00.0N,074 00.0W
STARTING AT 02 1818 SEP FOR 12 HOURS FOR FREQUENCY 121,243,406

DETECT FREQ      DETECT TIME SAT SOURCE VISIBILITY
121,243          01 2020 SEP  S3   PR1    HIGH
121,243,406      02 0303 SEP  S4   PR1    HIGH
121,243,406      02 0435 SEP  S6   PR1    HIGH
121,406          02 0623 SEP  C8   PR1    HIGH
121,243,406      02 0625 SEP  S7   PR1    HIGH
121,243          02 0710 SEP  S3   PR2    LOW
121,243,406      02 0715 SEP  S4   TX2    HIGH
121,243,406      02 0900 SEP  S7   PR2    HIGH

QQQQ
/LASSIT
/ENDMSG
```

Appendix 1

Alert and Support Message Definitions

The fields and terms used in alert and support messages transmitted by the USMCC are defined in this Appendix. The term "N/A" can mean either that the information is not applicable or that the information is not available. The fields used in the Message Administration Block are identified below. These fields are not specifically labeled in the alert messages.

Field	Definition
Message Number	The sequential message number assigned by the USMCC. This field contains two numbers; the current message number and the original message number if the message is re-transmitted.
Reporting MCC	The reporting MCC, always the USMCC or 3660.
Message Transmit Time	The message transmit time from the USMCC. The format is YY DDD HHMM where YY is the year, DDD is the day of the year and HHMM are the hours and minutes.
SIT	The Subject Indicator Type (SIT) of the alert or support message (complete list provided in Section 2).
SIT Destination	The destination of the alert message. A complete list can be obtained from the USMCC.

The fields for alert messages [contained in the Alert Data Block, Beacon Decode Data Block, Beacon Registration Data Block, Support Data Block and the Incident Feedback Report] are defined below. The section of the message where the term is found, and in what type of messages its found, is provided in the first line of the definition column.

Term	Definition
406 REGISTRATION DATA USED TO RESOLVE INCIDENT	**Incident Feedback Report** **All 406 MHz Alerts** Was 406 registration data provided by the USMCC used to resolve the incident. *Feedback on this field required only for non-distress and distress cases.*
ACTIVATION TYPE	**Beacon Registration Data Block** **All 406 MHz Beacons** Activation method of a 406 MHz beacon, this information is decoded from the 15 hexadecimal beacon ID. CAT1 means that the beacon could be activated either manually or automatically, CAT2 means that the beacon can only be activated manually.
ACTUAL LOCATION	**Incident Feedback Report** **All Alerts** The actual location of the beacon as determined by the SAR forces. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
AIRCRAFT MANUFACTURER/ MODEL	**Beacon Registration Data Block** **All 406 MHz ELTs** Aircraft manufacturer/model as provided by the owner/operator.
AIRCRAFT USE	**Beacon Registration Data Block** **All 406 MHz ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier.
AIRPORT	**Beacon Registration Data Block** **All 406 MHz ELTs** Home base or airport, as provided by the owner/operator, for the aircraft to which this ELT is registered.
ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO	**Support Data Block** **All Alerts** This is a list of all destinations, either other RCCs, SPOCs or MCCs that have received alerts for this site or beacon.
ALTERNATE AIRPORT	**Beacon Registration Data Block** **All 406 MHz ELTs** Alternate home base or airport, as provided by the owner/operator, for the aircraft to which this ELT is registered.
ALTERNATE PORT	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Alternate home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.
BEACON ID	**Alert Data Block** **All 406 MHz Beacons** The 15 character hexadecimal identifier of a 406 MHz beacon. The 15 characters represent bits 26 to 85 of a complete 406 MHz beacon message (bits 25 to 144 or bits 25 to 112). For User Protocol beacons the identification of the beacon is stored in these bits. For Location Protocol Beacons the identification and position information is stored in these bits. Note that for RCC messages the bits that contain the position information is set to default values. This will allow the 15 characters hexadecimal identifier to stay the same even if the encoded position changes.
BEACON MANUFACTURER	**Incident Feedback Report** **All Alerts** The beacon manufacturer if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alert. *Feedback on this field required only for non-distress and distress cases.*
BEACON MODEL	**Incident Feedback Report** **All Alerts** The beacon manufacturer's model if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alert. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
BEACON TYPE	**Incident Feedback Report** **All Alerts** The beacon type (EPIRB, ELT or PLB) if a 121.5/243 MHz signal is from a real beacon or if the information is not provided on 406 MHz alerts. *Feedback on this field required only for non-distress and distress cases.*
BEACON TYPE	**Beacon Decode Data Block** **All 406 MHz Beacons** The beacon type decoded from the digital message by the USMCC. Valid types are: EPIRBs ELTs PLBs Serialized Serialized Serialized Maritime Aircraft Registration Radio Call Sign Aircraft 24 Bit Address MMSI Aircraft Operator Designator
BUFFER	**Alert Data Block** **All Alerts** **Support Data Block** Identifies another SRR (besides the primary) if it is within 50 kilometers of the alert position. Only one buffer SRR (the closest one) is provided on alert messages.
CAPACITY	**Beacon Registration Data Block** **All 406 MHz ELTs/EPIRBs** The capacity of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered.
CELLULAR NUMBER	**Beacon Registration Data Block** **All 406 MHz Beacons** Cellular number for the owner as provided by the owner/operator.
CLOSED	**Alert Data Block** **All Alerts** Indicates if the USMCC site is closed or not. For 406 MHz sites both sides of a first alert have to have 3 missed passes before the site is closed. For 121.5/243 MHz alerts either the A or the B side may close out independently.
COLOR	**Beacon Registration Data Block** **All 406 MHz ELTs/EPIRBs** The color of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered.
CONTACTS	**Beacon Registration Data Block** **All 406 MHz Beacons** Emergency points of contact as provided by the owner/operator.

Term	Definition	
COSPAS-SARSAT ONLY NOTIFICATION	**Incident Feedback Report**	**All Alerts**
	Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] the only notification of the incident.	
	Feedback on this field required only for non-distress and distress cases.	
COSPAS-SARSAT FIRST NOTIFICATION	**Incident Feedback Report**	**All Alerts**
	Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] the first notification of the incident	
	Feedback on this field required only for non-distress and distress cases.	
COSPAS-SARSAT USED FOR LOCATION ONLY	**Incident Feedback Report**	**All Alerts**
	Was the alert generated by the Cospas-Sarsat System [and relayed by the USMCC] used only for location. If the answer is yes it implies that there was other notification of the incident and the USMCC provided position was used to corroborate the distress. In cases where Cospas-Sarsat was the first or only notification, the answer would be no (its implied that if Cospas-Sarsat provided the only or t he first alert, the position provided was used).	
	Feedback on this field required only for non-distress and distress cases.	
COUNTRY	**Beacon Decode Data Block**	**All 406 MHz Beacons**
	The country, nationality, state or territory associated with the MID Code in the Beacon Decode Data Block. The MID codes are assigned by the International Telecommunications Union (ITU).	
CRAFT ID	**Beacon Decode Data Block**	**All 406 MHz Beacons**
	The decoded identifier of the vessel/aircraft. This information is decoded by the USMCC and is derived from the beacon identifier. The identifier can be a radio call sign, a MMSI number, an aircraft tail number or registration marking, an aircraft 24 bit address or an aircraft operator designator.	
DATE LAST UPDATED	**Beacon Registration Data Block**	**All 406 MHz Beacons**
	The date that this registration information was last updated.	
DATE DECAL EXPIRES	**Beacon Registration Data Block**	**All 406 MHz Beacons**
	The date that the registration information for this beacon expires. The USMCC issues a decal with every new beacon registration or confirmation. The decal contains an expiration date of two years from the date of issue.	
DATE FIRST REGISTERED	**Beacon Registration Data Block**	**All 406 MHz Beacons**
	The date that this beacon was first entered into the USMCC registration database.	

Term	Definition
DETECT TIME	**Alert Data Block** **All Alerts** The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT. **Support Data Block** **All Alerts** For previous pass information the detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT. For next time signal should be detected information the detect time corresponds to the time of the closest approach of the satellite to the beacon or signal source.
DURATION	**Alert Data Block** **All Alerts** The duration in hours that this beacon has been active. It is calculated from the first detect time available for this beacon or site to the last detect time. This information is only provided on notification of ambiguity resolution messages, composite update messages and on certain missed pass reports.
FREQ	**Alert Data Block** **All 121.5/243 MHz Alerts** The frequency of a 121.5/243 MHz signal presented in MHz. Beacons or signals detected at both the 121.5 and 243 frequencies are listed with the 121.5 MHz frequency and identified with a "D" preceding the frequency.
GEOSAR DATA USED TO RESOLVE INCIDENT	**Incident Feedback Report** **All 406 MHz Alerts** Was only the GEOSAR data used to resolve the incident. In the case of US serialized beacons, the alert would have to be combined with registration data. The answer can be yes if the incident was resolved prior to receiving low-earth orbiting satellite data or GEOSAR was the only data received. *Feedback on this field required only for non-distress and distress cases.*
HOME PORT	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.
HOME TEL	**Beacon Registration Data Block** **All 406 MHz Beacons** The home telephone number for the owner of the beacon.
HOMING	**Beacon Decode Data Block** **All 406 MHz Beacons** The type of homing provided in this beacon. Valid options are 121.5 MHz, SAR Transponder (SART), Other or None.

Term	Definition
HOURS OF RESOURCE ALLOCATED	**Incident Feedback Report** **All Alerts** Hours of assets utilized in resolving the incident. Provide hours of all assets used. Assets are categorized as boat, cutter, helicopter, fixed wing, Civil Air Patrol or other. *Feedback on this field required only for non-distress and distress cases.*
HOW DETERMINED	**Incident Feedback Report** **All Alerts** How the actual location of the beacon as determined by the SAR forces. Valid choices are Loran, Omega, VOR, VOR-DME, TACAN, SATNAV, GPS, Chart or other. *Feedback on this field required only for non-distress and distress cases.*
HOW ACTIVATED	**Incident Feedback Report** **All Alerts** How the beacon was activated. Valid choices are automatically, manually, due to a user-error, due to a beacon problem or due to a bracket failure (for CAT 1 beacons). User-error can be attributed to accidental or inadvertent activations, incorrect installation or handling or other reasons that are the operators fault. Beacon problems are problems with the beacon electronics, hardware, batteries or casing. Bracket failures are failures of the release mechanism or the restraining mechanism. *Feedback on this field required only for non-distress and distress cases.*
IMAGE SITE	**Alert Data Block** **All 121.5/243 MHz Beacons** The term is used when the ambiguity for a 121/5/243 MHz site has been resolved. The image site is listed to allow RCCs to quickly identify if a previous alert they had received is now determined to be an image position.
INCIDENT / MISSION / CASE NUMBER	**Incident Feedback Report** **All Alerts** The incident, mission or case number assigned by the RCC. *Feedback on this field required regardless of outcome*
INCIDENT / MISSION / CASE START TIME	**Incident Feedback Report** **All Alerts** The incident, mission or case start time in GMT. *Feedback on this field required regardless of outcome*
INMARSAT NUMBER	**Beacon Registration Data Block** **All 406 MHz EPIRBs** Inmarsat contact number, as provided by the owner/operator, for the vessel to which this EPIRB is registered.

Term	Definition
LATITUDE	**Alert Data Block** All Alerts **Support Data Block** The latitude position of the alert provided in degrees and minutes. The position can be either be calculated by LUTs or by extracting it from the digital message.
LEASING AGENT	**Beacon Registration Data Block** All 406 MHz ELTs The leasing agent of the aircraft, as provided by the owner/operator, for the aircraft to which this ELT is registered.
LENGTH OVERALL (FT)	**Beacon Registration Data Block** All 406 MHz EPIRBs The length of the vessel to which this EPIRB is registered.
LONGITUDE	**Alert Data Block** All Alerts **Support Data Block** The longitude position of the alert provided in degrees and minutes. The position can be either be calculated by LUTs or by extracting it from the digital message.
MANUFACTURER	**Beacon Decode Data Block** All 406 MHz Beacons The manufacturer of the beacon as decoded from the beacon identifier. This information is only available on US serialized beacons. **Beacon Registration Data Block** All 406 MHz Beacons The manufacturer of the beacon as provided by the owner/operator of the beacon.
MID CODE	**Beacon Decode Data Block** All 406 MHz Beacons The International Telecommunications Union (ITU) Maritime Identification Digit for the country, nationality, state or territory associated with this beacon. A complete list is provided in the Cospas-Sarsat document C/S A.001 or in Appendix 43 of the ITU Radio Regulations. Only MID codes from 200 to 779 are assigned as of September 1997. Note that each county may have more than one MID assigned to it.
MODEL	**Beacon Decode Data Block** All 406 MHz Beacons The model of the beacon as decoded from the beacon identifier. This information is only available on US serialized beacons.
MODEL NUMBER	**Beacon Registration Data Block** All 406 MHz Beacons The model number of the beacon as provided by the owner/operator of the beacon.
MP	**Alert Data Block** All Alerts The number of missed detections for this beacon or site. The number in this column indicates how many missed detections exist for the current message.

Term	Definition
NEXT TIME SIGNAL SHOULD BE DETECTED	**Support Data Block** **All 406 MHz Beacons** The next time the beacon should be detected. The "SOL" (solution), "DETECT TIME", "SAT" (satellite), "SOURCE" (US LUT) and the "VISIBILITY" [between the satellite, LUT and beacon] are provided. For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated. **Support Data Block** **All 121.5/243 MHz Beacons** The next time the beacon should be detected. The "SITE ID" (site identifier), "SOL" (solution), "DETECT TIME", "SAT" (satellite), "SOURCE" (US LUT) and the "VISIBILITY" [between the satellite, LUT and beacon] are provided. The site identifier corresponding to the composite or first alert site is indicated under "SITE ID". For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
OUTCOME (CEASED / DISTRESS / NON-DISTRESS)	**Incident Feedback Report** **All Alerts** The outcome of the incident. Ceased if the source of the signal was not found. Non-distress if an accidental activation or non-distress situation confirmed. Distress if activated in a distress situation. *Feedback on this field required regardless of outcome*
OWNER	**Beacon Registration Data Block** **All 406 MHz Beacons** The owner of a 406 MHz beacon. This field also contains the owner's mailing address.
PASSES	**Alert Data Block** **All Alerts** The number of satellite passes over a beacon or signal source. This information is only provided for composite alerts. Each pass is defined as a pass of a satellite over an active beacon or signal source. For data from geostationary satellites a pass is defined as data received from a unique geostationary satellite.

Term	Definition
PREVIOUS PASS INFORMATION	**Support Data Block** **All 406 MHz Beacons** The previous satellite passes for this beacon up to 4 passes. In cases of position conflict alerts there is no limit to how many previous passes are sent. The "PROB" (probability), "SOL" (solution), "LATITUDE" , "LONGITUDE", "DETECT TIME", "SAT" (satellite), and "SOURCE" (US LUT) are provided. For composite sites the "SOL" column will indicate a "C", otherwise the "A" or "B" solution is identified. **Support Data Block** **All 121.5/243 MHz Beacons** The previous satellite passes for this signal source. The "SITE ID" (site identifier), "LATITUDE", "LONGITUDE", "DETECT TIME", "FREQ" (frequency), "SWP" (sweep), "SAT" (satellite), "SOURCE" (US LUT) and the "SRR/BUFFER" are provided. The site identifier corresponding to the composite or first alert site is indicated under "SITE ID".
PROB	**Alert Data Block** **All 406 MHz Alerts** **Support Data Block** The probability that the "A" solution is correct. Tests have shown that 95% of the time the solution identified as the "A" is the real position of the beacon. The probability is not provided for positions derived from encoded data (i.e., GPS positions contained in the beacon message). Valid ranges are 01 to 99.
RADIO EQP	**Beacon Registration Data Block** **All 406 MHz Alerts** The type of radio equipment on board vessel/aircraft or person. May include Inmarsat number, VHF_FM, VHF_AM, HF, MF, or Other.
RADIO CALL SIGN	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The vessels' radio call sign as provided by the owner/operator. This may be a foreign radio call sign for foreign flagged vessel.
REGISTRATION NO	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The vessel's documentation or registration number provided by the owner/operator.
REMARKS	**Beacon Registration Data Block** **All 406 MHz Alerts** Additional remarks or comments provided by the owner/operator. This section may contain information on new owners of the beacon.
RESCUED	**Incident Feedback Report** **All Alerts** The number of people rescued during the incident. If a 121.5 site is created for a 406 homer report the saves under the 406 feedback. *Feedback on this field required only for distress cases.*

Term	Definition
SAT	**Alert Data Block** **All Alerts** **Support Data Block** The identifier of the Cospas-Sarsat satellite providing the alert. "S" indicates a SARSAT (USA) low-earth orbiting satellite, "C" indicates a COSPAS (Russian) low-earth orbiting satellite, and "G" indicates a GOES (USA) geostationary satellite. Consult with the USMCC to obtain the current list of operational satellites.
SERIAL NUM	**Beacon Decode Data Block** **All 406 MHz Beacons** The serial number of serialized 406 MHz beacons. For US beacons the manufacturer, model and serial number are derived from this larger serial number. For US serialized beacons this field will contain the sequence number assigned by the beacon manufacturer. For foreign beacons the number will contain the value of all 44 identification bits of the beacon message.
SITE ID	**Alert Data Block** **All 121.5/243 MHz Alerts** **Support Data Block** The USMCC assigned site identifier. Each first alert is identified by two site identifiers under the "SITE ID" column. The first number of the "SITE ID" is the frequency at which the signal is detected. A "1" means that it was detected as a 121.5 MHz signal, a "2" means that it was detected as a 243 MHz signal and a "3" means it was detected as a dual 121.5/243 MHz signal. The next letter identifies whether the position is the "A" or the "B" position. The remaining five digits are unique, sequential identifiers assigned by the USMCC. **Alert Data Block** **All 406 MHz Alerts** **Support Data Block** The USMCC assigned site identifier consisting of unique five digits.
SITE ID OF OTHER FEEDBACK REPORT FOR SAME INCIDENT	**Incident Feedback Report** **All 121.5/243 MHz Alerts** 121.5/243 MHz signals may create multiple USMCC sites. In these cases provide the feedback on one of the multiple sites and provide the that site ID on the remainder of the feedback reports. *Feedback on this field required for all cases.*
SOL	**Alert Data Block** **All Alerts** **Support Data Block** The solution associated with the latitude and longitude provided. "A" solution is identified as the position with a higher probability of being correct. "B" solution is identified as the position with a lower probability of being correct. A "C" means that the position is a composite solution and no ambiguity exists. An "E" is a position encoded in the 406 MHz beacon message (i.e., a position obtained from GPS and inserted into the 406 MHz beacon burst).

Term	Definition
SOURCE	**Alert Data Block** **All Alerts** **Support Data Block** The source of the alert data. Valid sources are US LUTs or foreign MCCs. Valid US LUTs are: AK1 Alaska LUT 1 Fairbanks, Alaska AK2 Alaska LUT 2 Fairbanks, Alaska CA1 California LUT 1 Vandenburg AFB, California CA2 California LUT 2 Vandenburg AFB, California HI1 Hawaii LUT 1 Wahiawai, Hawaii HI2 Hawaii LUT 2 Wahiawai, Hawaii GU1 Guam LUT 1 Anderson AFB, Guam GU2 Guam LUT 2 Anderson AFB, Guam TX1 Texas LUT 1 Houston, Texas TX2 Texas LUT 2 Houston, Texas PR1 Puerto Rico LUT 1 San Juan, Puerto Rico PR2 Puerto Rico LUT 2 San Juan, Puerto Rico OSE Operational Support Suitland, Maryland Equipment SSE System Support Suitland, Maryland Equipment Valid foreign MCCs are: ALMCC Algeria MCC Algiers AUMCC Australia MCC Canberra BRMCC Brazil MCC Brasilia CHMCC Chile MCC Santiago CMC Cospas Mission Control Moscow CMCC Canada MCC Trenton CNMCC China MCC Beijing FMCC France MCC Toulouse HKMCC Hong Kong MCC Hong Kong IDMCC Indonesia MCC Jakarta INMCC India MCC Bangalore ITMCC Italy MCC Bari JAMCC Japan MCC Tokyo KOMCC Korea MCC Taejon NMCC Norway MCC Bodoe PAMCC Pakistan MCC Lahore PEMCC Peru MCC Callao SAMCC Saudi Arabia MCC Jeddah SIMCC Singapore MCC Singapore SPMCC Spain MCC Maspalomas TAMCC Taipei MCC Taipei UKMCC United Kingdom MCC Kinloss USMCC United States MCC Suitland ZAMCC South Africa MCC Cape Town

Term	Definition
SRR	**Alert Data Block** **All Alerts** **Support Data Block** The Search and Rescue Region associated with the given position. For US RCCs the SRR is associated with a given Area of Responsibility for Coast Guard, Air Force and Joint RCCs. For foreign SRRs the position is associated with either the MCC service area or a national SAR boundary for SAR Points of Contact. The complete list can be obtained from the USMCC.
STATE OR GENERAL LOCATION	**Incident Feedback Report** **All Alerts** The two letter state identifier for the position of the actual alert *Feedback on this field required only for non-distress and distress cases.*
SWP	**Alert Data Block** **All 121.5/243 MHz Alerts** **Support Data Block** The presence of sweep (audio modulation) for 121.5/243 MHz signals. The presence of sweep can be an indicator of whether the signal is a real beacon or not. The sweep determination is made by the USMCC and can have one of two outcomes. A "YES" indicates that the audio modulation was detected and chances are that the signal source is a real beacon. A "UNK" indicates that not enough information exists to make the sweep determination or that the signal may be interferer.
THIS ALERT MESSAGE IS BEING SENT TO	**Support Data Block** **All Alerts** This list identifies all destinations that are receiving the current alert message.
TAIL NUMBER	**Beacon Registration Data Block** **All 406 MHz ELTs** The aircraft's tail number or registration number provided by the owner/operator.
TIME RESCUE FORCES ARRIVED	**Incident Feedback Report** **All Alerts** The time rescue forces arrived on scene in GMT. *Feedback on this field required only for non-distress and distress cases.*
TIME ALERT DETERMINED TO A FALSE ALARM OR RESOURCE LAUNCHED	**Incident Feedback Report** **All Alerts** The time (in GMT) the incident is determined to be a false alarm or the decision was made to launch assets. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
TOTAL INVOLVED	**Incident Feedback Report** **All Alerts** The total number of people involved during the incident (excluding the rescue personnel). If a 121.5 site is created of a 406 homer report the total involved under the 406 feedback. *Feedback on this field required only for distress cases.*
TYPE	**Beacon Registration Data Block** **All 406 MHz ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier **Beacon Registration Data Block** **All 406 MHz EPIRBs** The type of vessel. Sailing vessels are categorized as sail (sloop, yawl, schooner or other) or power (fishing, tug/tow, cargo, tanker, cabin cruiser or other).
USE	**Beacon Registration Data Block** **All 406 MHz PLBs** The use of a personal locator beacon. The use can be for a land vehicle, hunting/fishing, hiking, boating, cross country skiing, or other
USMCC PROCESSING TIME	**Support Data Block** **All Alerts** The time that the alert in the current message was processed at the USMCC. This time may be different from the time the RCC receives the alert or the time the USMCC actually transmits the alert.
VESSEL / AIRCRAFT TYPE AND NAME	**Incident Feedback Report** **All Alerts** The name of the vessel or aircraft as determined by the RCC. *Feedback on this field required only for non-distress and distress cases.*
VESSEL NAME	**Beacon Registration Data Block** **All 406 MHz EPIRBs** The name of the vessel provided by the owner/operator.
VISIBILITY	**Support Data Block** **All Alerts** The visibility between the satellite, LUT and beacon. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
WHY ACTIVATED	**Incident Feedback Report** **All Alerts** Why the beacon was activated. Valid choices are distress, test or other. This field is only completed for when beacons are manually activated. *Feedback on this field required only for non-distress and distress cases.*

Term	Definition
WORK TEL	**Beacon Registration Data Block** **All 406 MHz Beacons** The work telephone number for the owner of the beacon.

The fields for support messages are defined below. As these messages do not have a specific format, information on the section of the message is not provided.

Term	Definition
ACTIVATION TYPE	**406 Beacon Registration for EPRIBs** Activation method of a 406 MHz beacon, this information is decoded from the 15 hexadecimal beacon ID. CAT1 means that the beacon could be activated either manually or automatically, CAT2 means that the beacon can only be activated manually.
AIRCRAFT USE	**406 Beacon Registration for ELTs** The type of aircraft. Aircraft can be categorized as general, commercial or an air carrier.
AIRCRAFT MANUFACTURER/ MODEL	**406 Beacon Registration for ELTs** Aircraft manufacturer/model as provided by owner/operator.
AIRCRAFT REGISTRATION	**Alert Query Report** Aircraft registration used for the alert query. Can include the 24-bit address, aircraft operator designation, and aircraft registration (or tail number)
AIRPORT	**406 Beacon Registration for ELTs** Home base or airport, as provided by the owner/operator, for the aircraft to which the ELT is registered.
ALTERNATE PORT	406 Beacon Registration for EPRIBs Alternate home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.
ALTERNATE AIRPORT	**406 Beacon Registration for ELTs** Alternate home base or airport, as provided by the owner/operator, for the aircraft to which the ELT is registered.
BEACON ID	**Alert Query Report** **406 Beacon Registration** The 15 character hexadecimal identifier of a 406 MHz beacon used in the alert query. The 15 characters represent bits 26 to 85 of a complete 406 MHz beacon message (bits 25 to 144 or bits 25 to 112). For User Protocol beacons the identification of the beacon is stored in these bits. For Location Protocol Beacons the identification and position information is stored in these bits. Note that for RCC messages the bits that contain the position information is set to default values. This will allow the 15 characters hexadecimal identifier to stay the same even if the encoded position changes.

Term	Definition
CAPACITY	**406 Beacon Registration for EPIRBs/ELTs** The capacity of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered
CELLULAR NUMBER	**406 Beacon Registration** Cellular number for the owner as provided by the owner/operator
CENTER POSITION	**Alert Query Report** The position (latitude and longitude) used to conduct an alert query based on a center point and radius.
COLOR	**406 Beacon Registration for EPIRBs/ELTs** The color of the vessel/aircraft, as provided by the owner/operator, for the vessel/aircraft to which this beacon is registered
CONTACTS	**406 Beacon Registration** Emergency points of contact as provided by the owner/operator
COUNTRY CODE	**Alert Query Report** The International Telecommunications Union (ITU) Maritime Identification Digit for the country, nationality, state or territory associated with this beacon. A complete list is provided in the Cospas-Sarsat document C/S A.001 or in Appendix 43 of the ITU Radio Regulations. Only MID codes from 200 to 779 are assigned as of September 1997. Note that each county may have more than one MID assigned to it.
DATE DECAL EXPIRES	**406 Beacon Registration** The date that the registration information for this beacon expires. The USMCC issues a decal with every new beacon registration or confirmation. The decal contains an expiration date of two years from the date of issue.
DATE LAST UPDATED	**406 Beacon Registration** The date that this registration information was last updated.
DATE FIRST REGISTERED	**406 Beacon Registration** The date that this beacon was first entered into the USMCC registration database

Term	Definition
DETECT TIME	**Alert Query Report** The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT. For next time signal should be detected information the detect time corresponds to the time of the closest approach of the satellite to the beacon or signal source. **Beacon-LUT Mutual Visibility Schedule** The next time of the closest approach of the satellite to the beacon or signal source. Calculated based on the input position.
DETECT FREQ	**Beacon-LUT Mutual Visibility Schedule** The frequencies that can be detected by the corresponding satellite.
DUR	**Alert Query Report** The duration (in hours) that the signal has been active. Calculated from the first TCA to the last time the signal was detected.
EAST BOUNDARY	**Alert Query Report** The eastern boundary of an alert query based on a search rectangle.
FIRST TCA	**Alert Query Report** The first time the signal or beacon was detected. The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT.
FREQ	**Alert Query Report** The frequency of a 121.5/243 MHz signal presented in MHz. Beacons or signals detected at both the 121.5 and 243 frequencies are listed with the 121.5 MHz frequency and identified with a "D" preceding the frequency.
HOME PORT	**406 Beacon Registration for EPRIBs** Home port, as provided by the owner/operator, for the vessel to which this EPIRB is registered.
HOME TEL	**406 Beacon Registration** The home telephone number for the owner of the beacon or the emergency points of contact.

Term	Definition
INMARSAT NUMBER	**406 Beacon Registration for EPIRBs** Inmarsat contact number, as provided by the owner/operator, for the vessel to which the EPIRB is registered.
LAST TCA	**Alert Query Report** The last time the signal or beacon was detected. The detect time corresponds to the Time of Closest Approach (TCA) of the satellite to the beacon or signal source. For 406 MHz unlocated alerts the time corresponds to the time of the last data burst received by the LUT.
LAST DATA PROCESSED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the USMCC last processed data for this site. This time is different from the last TCA as additional data may have been received at the USMCC
LATITUDE	**Alert Query Report** The latitude position of the alert provided in degrees and minutes. The position can be either calculated by LUTs or by extracting it from the digital message (for 406 MHz beacons with GPS input)
LEASING AGENT	**406 Beacon Registration for ELTs** The leasing agent of the aircraft, as provided by the owner/operator, for the aircraft to which this ELT is registered.
LENGTH OVERALL (FT)	**406 Beacon Registration for EPIRBs** The length of the vessel to which the EPIRB is registered
LONGITUDE	**Alert Query Report** The longitude position of the alert provided in degrees and minutes. The position can be either calculated by LUTs or by extracting it from the digital message (for 406 MHz beacons with GPS input)
MANUFACTURER	**406 Beacon Registration** The manufacturer of the beacon as provided by the owner/operator of the beacon.
MESSAGE DESTINATIONS	**Alert Query Report** This is a list of all destinations, either other RCCs, SPOCs or MCCs that have received alerts for this site or beacon.
MMSI	**Alert Query Report** The Mobile Maritime Service Identity (MMSI) used for the alert query. The MMSI consists of the three digit country code (or MID code) and the trailing six digits ship station identity in accordance with Appendix 43 of ITU Radio Regulations.

Term	Definition
MODEL NUMBER	406 Beacon Registration The model number of the beacon as provided by the owner/operator of the beacon.
NORTH BOUNDARY	**Alert Query Report** The northern boundary of an alert query based on a search rectangle.
OWNER	**406 Beacon Registration** The owner of a 406 MHz beacon. This field also contains the owner's mailing address.
RADIO CALL SIGN	**406 Beacon Registration for EPIRBs** The vessel's radio call sign as provided by the owner/operator. This may be a foreign radio call sign for foreign flagged vessel.
RADIO EQP	**406 Beacon Registration** The type of radio equipment on board vessel/aircraft or person. May include Inmarsat number, VHF_FM, VHF_AM, HF, MF, or Other
RADIUS	**Alert Query Report** The radius (in kilometers) used to conduct an alert query based on a center point and radius.
REASON CLOSED	**Alert Query Report** The reason the site was closed. It can either be closed due to a configurable number of missed satellite detections, or a configurable time period.
REGISTRATION NO	**406 Beacon Registration for EPIRBs** The vessel's documentation or registration number provided by the owner/operator.
REMARKS	**406 Beacon Registration** Additional remarks or comments provided by the owner/operator. This section may contain information on new owners of the beacon.
REPORT END	**Alert Query Report** Search end time of the alert query. The information is provided in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year.

Term	Definition
REPORT START	**Alert Query Report** Search start time of the alert query. The information is provided in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year.
SAT	**Alert Query Report** The identifier of the Cospas-Sarsat satellite providing the alert. "S" indicates a SARSAT (USA) low-earth orbiting satellite, "C" indicates a COSPAS (Russian) low-earth orbiting satellite, and "G" indicates a GOES (USA) geostationary satellite. Consult with the USMCC to obtain the current list of operational satellites.
SEARCH FREQ	**Alert Query Report** Frequency of the signal or beacon included in the search. May contain more than one frequency.
SHIP CALL SIGN	**Alert Query Report** The radio call sign used for the alert query. The radio call sign is an alphanumeric sequence (letters and digits) assigned to a particular vessel by the flag State administration.
SITE/BEACON ID	**Alert Query Report** See Site ID or Beacon ID.
SITE CREATED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the site was first opened or created at the USMCC. This is approximately the time it was received at the USMCC.
SITE CLOSED	**Alert Query Report** The time (in DD HHMM MON YY format where DD is day of month, HH is the hour in GMT, MM is minutes, MON is month and YY is year) when the site was closed by the USMCC. The site may be closed due to missed satellite detections or an age-out time.
SITE ID	**Alert Query Report** The site ID if information was requested for a certain site. Additional information on site IDs is contained in the alert message definitions.

Term	Definition
SOL	**Alert Query Report**
	The solution associated with the latitude and longitude provided. "A" solution is identified as the position with a higher probability of being correct. "B" solution is identified as the position with a lower probability of being correct. A "C" means that the position is a composite solution and no ambiguity exists. An "E" is a position encoded in the 406 MHz beacon message (i.e., a position obtained from GPS and inserted into the 406 MHz beacon burst).

Term	Definition
SOURCE	**Alert Query Report** The source of the alert data. Valid sources are US LUTs or foreign MCCs. Valid US LUTs are: AK1 Alaska LUT 1 Fairbanks, Alaska AK2 Alaska LUT 2 Fairbanks, Alaska CA1 California LUT 1 Vandenburg AFB, California CA2 California LUT 2 Vandenburg AFB, California HI1 Hawaii LUT 1 Wahiawai, Hawaii HI2 Hawaii LUT 2 Wahiawai, Hawaii GU1 Guam LUT 1 Anderson AFB, Guam GU2 Guam LUT 2 Anderson AFB, Guam TX1 Texas LUT 1 Houston, Texas TX2 Texas LUT 2 Houston, Texas PR1 Puerto Rico LUT 1 San Juan, Puerto Rico PR2 Puerto Rico LUT 2 San Juan, Puerto Rico OSE Operational Support Suitland, Maryland Equipment SSE System Support Suitland, Maryland Equipment Valid foreign MCCs are: ALMCC Algeria MCC Algiers AUMCC Australia MCC Canberra BRMCC Brazil MCC Brasilia CHMCC Chile MCC Santiago CMC Cospas Mission Control Moscow CMCC Canada MCC Trenton CNMCC China MCC Beijing FMCC France MCC Toulouse HKMCC Hong Kong MCC Hong Kong IDMCC Indonesia MCC Jakarta INMCC India MCC Bangalore ITMCC Italy MCC Bari JAMCC Japan MCC Tokyo KOMCC Korea MCC Taejon NMCC Norway MCC Bodoe PAMCC Pakistan MCC Lahore PEMCC Peru MCC Callao SAMCC Saudi Arabia MCC Jeddah SIMCC Singapore MCC Singapore SPMCC Spain MCC Maspalomas TAMCC Taipei MCC Taipei UKMCC United Kingdom MCC Kinloss USMCC United States MCC Suitland ZAMCC South Africa MCC Cape Town
SOUTH BOUNDARY	**Alert Query Report** The southern boundary of an alert query based on a search rectangle.

Term	Definition
SWP	**Alert Query Report** The presence of sweep (audio modulation) for 121.5/243 MHz signals. The presence of sweep can be an indicator of whether the signal is a real beacon or not. The sweep determination is made by the USMCC and can have one of two outcomes. A "YES" indicates that the audio modulation was detected and chances are that the signal source is a real beacon. A "UNK" indicates that not enough information exists to make the sweep determination or that the signal may be interferer.
TAIL NUMBER	**406 Beacon Registration for ELTs** The aircraft's tail number or registration number (sometimes referred to as the "N" number) provided by the owner/operator.
TYPE	**406 Beacon Registration for EPIRBs** The type of vessel. Sailing vessels are categorized as sail (sloop, yawl, schooner or other) or power (fishing, tug/tow, cargo, tanker, cabin cruiser or other)
USE	**406 Beacon Registration for PLBs** The use of the personal locator beacon. The use can be for a land vehicle, hunting/fishing, hiking, boating, cross country skiing, or other.
VESSEL NAME	**406 Beacon Registration for EPIRBs** The name of the vessel provided by the owner/operator
VISIBILITY	**Alert Query Report** **Beacon-LUT Mutual Visibility Schedule** The visibility between the satellite, LUT and beacon. For "HIGH" visibility passes, a missed pass report will be transmitted to the RCC. For "LOW" visibility passes no missed pass report is generated.
WEST BOUNDARY	**Alert Query Report** The western boundary of an alert query based on a search rectangle.
WORK TEL	**406 Beacon Registration** The work telephone number for the owner of the beacon or the emergency points of contact

Appendix 2

Beacon Registration Data Block Formats

The format for registration data varies based on the type of beacon registered. EPIRB, ELT, and PLB registration forms, all have different formats as different types of information are being conveyed. An example of each of the data block formats is presented below.

- Remainder of Page Blank -

ELT Beacon Registration Data Block Format

```
******************  USMCC REGISTRATION DATABASE INFORMATION  ******************

OWNER: CALKINS MARK E-C/O DANIELS
       5720 EL CAMINO REAL           HOME TEL: 9092601234
       CARLSBAD            CA    WORK TEL: 7604387741
       92008    USA

CONTACTS: JAYNE MITCHELL-WKEXT205    SHARON GREENE-WKEXT 302
          HOME TEL: 7605996866       HOME TEL: 7607218160
          WORK TEL: 7604387741       WORK TEL: 7604387741

CELLULAR NUMBER:

LEASING AGENT:

AIRCRAFT MANUFACTURER/MODEL: LEARJET/35
AIRCRAFT USE: GENERAL AVIATION        COLOR: GRAY W/BLACK
RADIO EQP: VHF-AM/HF                   CAPACITY:     9
TAIL NUMBER: N10BD

AIRPORT:                       CARLSBAD             CA
ALTERNATE AIRPORT:

MANUFACTURER: ARTEX                    MODEL NUMBER: 110-406 NAV

DATE FIRST REGISTERED: 10 NOV 1998   DATE DECAL EXPIRES: 10 NOV 2000
DATE LAST UPDATED:  10 NOV 1998

REMARKS:
```

EPIRB Beacon Registration Data Block Format

```
******************  USMCC REGISTRATION DATABASE INFORMATION  ******************

OWNER: ELIMINATOR INC
       PO BOX 6189                    HOME TEL: 9414811828
       FT MYERS BEACH        FL       WORK TEL: 9417651828
       33932      USA

CONTACTS: DENNIS HENDERSON          GEORGE GALA
          HOME TEL: 9414820509      HOME TEL: 4092336684
          WORK TEL: 9414633341      WORK TEL: 4092335784

CELLULAR NUMBER:

VESSEL NAME: ELIMINATOR
TYPE: POWER OIL SCREW               LENGTH OVERALL (FT):   62
COLOR: WHITE/WHITE                  CAPACITY:     0
RADIO CALL SIGN: WRM5666            REGISTRATION NO: 585131
RADIO EQP: VHF-FM                   INMARSAT NUMBER:

HOME PORT: TRICO SHRIMP COMPANY     FREEPORT               TX
ALTERNATE PORT:

MANUFACTURER: LITTON                MODEL NUMBER: 948-000001
ACTIVATION TYPE: CAT1 (MANUAL AND AUTOMATIC)

DATE FIRST REGISTERED: 24 MAY 1991   DATE DECAL EXPIRES: 24 OCT 1999
DATE LAST UPDATED:  24 OCT 1997

REMARKS:
```

PLB Beacon Registration Data Block Format

```
************  USMCC REGISTRATION DATABASE INFORMATION  ************

OWNER: DETACHMENT 4-9TH SRW (SAC)
      BRYANT AVENUE BLDG 245         HOME TEL:
                                     WORK TEL: 1507844848
                PANAMA               HOWARD AB

CONTACTS: USSOUTHCOM JOINT RESCUE    AF RESCUE COORDINATION
          HOME TEL: 1507823842       HOME TEL: 8008513051
          WORK TEL: 1507823843       WORK TEL: 6182564815

CELLULAR NUMBER:

RADIO EQP: VHF-FM/HF/UHF

USE: AIRCRAFT

MANUFACTURER: TELONICS              MODEL NUMBER: SARST406

DATE FIRST REGISTERED: 01 MAY 1990   DATE DECAL EXPIRES: None
DATE LAST UPDATED:  03 SEP 1993

REMARKS:


QQQQ
/LASSIT
/ENDMSG
```

Appendix 3

International RCC and SPOC Message Formats

International RCC and SPOC message formats are specified by Cospas-Sarsat as the standard formats for distributing alert data from MCCs to RCCs and SPOCs. As stated in section 2 of this document, the USMCC has worked closely with the Air Force and Coast Guard to develop US national standards for alert data distribution.

In the event that the USMCC should be unavailable to process alert data, the Canadian and Australian MCCs have agreed to provide alert data to US RCCs and SPOCs. In such instances, the Canadian and Australian MCCs will transmit alert data using the Cospas-Sarsat standard format, SIT 185.

The format of SIT 185 messages is straight forward and designed to be easily understood. Sample messages are provided here to familiarize US RCCs and SPOCs with these formats.

- Remainder of Page Blank -

SAMPLE MESSAGE FOR

SIT 185

SAMPLE WITH MESSAGE FIELD ANNOTATIONS (406 MHz NOCR)

1. DISTRESS COSPAS-SARSAT NOTIFICATION OF COUNTRY OF
    BEACON REGISTRATION ALERT

2. MSG NO. 16999   UKMCC REF   12345

3. DETECTED AT 22 FEB 95 1708 UTC BY SARSAT 04

4. DETECTION FREQUENCY 406.0269 MHZ

5. COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6. USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7. EMERGENCY CODE NIL

8. POSITIONS
    RESOLVED -   NIL
    DOPPLER A -   NIL
    DOPPLER B -   NIL
    ENCODED   -   50 24.0N 005 16.0W   UPDATE TIME
                                             UNKNOWN

9. ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
    RESOLVED   - NIL
    DOPPLER A - NIL
    DOPPLER B - NIL
    ENCODED   - NIL

11. HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14. OTHER ENCODED INFORMATION
    A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948

15. OPERATIONAL INFORMATION
    A.   REGISTRATION INFORMATION AT UKMCC
          TELEX: 45677 SRCC G
          AFTN: EGDBZSZX
          TELEPHONE: (44-1752) 605444

    B.   RELIABILITY OF ENCODED POSITION DATA - GOOD

16. REMARKS - NIL

END OF MESSAGE

SAMPLE 406 MHz RESOLVED POSITION ALERT
(LEOSAR - with encoded position)

1.   DISTRESS COSPAS-SARSAT POSITION RESOLVED ALERT

2.   MSG NO. 17001 UKMCC REF 12345

3.   DETECTED AT 22 FEB 95 1915 UTC BY COSPAS 06

4.   DETECTION FREQUENCY 406.0269 MHZ

5.   COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6.   USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7.   EMERGENCY CODE - NIL

8.   POSITIONS
          RESOLVED -   55 23.2N 022 29.9W
          DOPPLER A -   55 19.1N 022 20.4W   PROB 90
          DOPPLER B -   54 20.1N 062 20.2W   PROB 10
          ENCODED -   55 23.2N 022 25.0W   UPDATE TIME UNKNOWN

9.   ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10.   NEXT PASS TIMES
          RESOLVED   - 22 FEB 96 2130 UTC
          DOPPLER A - NIL
          DOPPLER B - NIL
          ENCODED   - NIL

11.   HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12.   ACTIVATION TYPE - MANUAL

13.   BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14.   OTHER ENCODED INFORMATION
          A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948

15.   OPERATIONAL INFORMATION
          A.   REGISTRATION INFORMATION AT UKMCC
          TELEX: 45677 SRCC G
          AFTN: EGDBZSZX
          TELEPHONE: (44-1752) 605444

16.   REMARKS - NIL

END OF MESSAGE

<div align="center">

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz CONTINUED TRANSMISSION ALERT
(LEOSAR - with encoded position)

</div>

1.   DISTRESS COSPAS-SARSAT POSITION RESOLVED UPDATE ALERT

2.   MSG NO. 17002 UKMCC REF 12345

3.   DETECTED AT 22 FEB 95 2130 UTC BY COSPAS 06

4.   DETECTION FREQUENCY 406.0269 MHZ

5.   COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6.   USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7.   EMERGENCY CODE - NIL

8.   POSITIONS
          RESOLVED -   55 23.2N 022 29.9W
          DOPPLER A -   55 19.1N 022 20.4W   PROB 90
          DOPPLER B -
          ENCODED -   55 23.2N 022 25.0W   UPDATE TIME UNKNOWN

9.   ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10. NEXT PASS TIMES
          RESOLVED   - 22 FEB 96 2201 UTC
          DOPPLER A - NIL
          DOPPLER B - NIL
          ENCODED   - NIL

11. HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12. ACTIVATION TYPE - MANUAL

13. BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14. OTHER ENCODED INFORMATION
          A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948
          B. ENCODED POSITION ACCURACY - 2 MINUTES

15. OPERATIONAL INFORMATION
          A.   REGISTRATION INFORMATION AT UKMCC
                  TELEX: 45677 SRCC G
                  AFTN: EGDBZSZX
                  TELEPHONE: (44-1752) 605444

16. REMARKS - NIL

END OF MESSAGE

<div align="center">

A3-5

</div>

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz POSITION CONFLICT ALERT
(LEOSAR - without encoded position)

1.   DISTRESS COSPAS-SARSAT POSITION CONFLICT ALERT

2.   MSG NO. 17001 UKMCC REF 12345/12346

3.   DETECTED AT 22 FEB 95 1738 UTC BY SARSAT 02

4.   DETECTION FREQUENCY 406.0269 MHZ

5.   COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6.   USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7.   EMERGENCY CODE - NIL

8.   POSITIONS
              RESOLVED -   NIL
              DOPPLER A -   56 16.1N 001 18.4W   PROB 50
              DOPPLER B -   54 47.9N 019 37.0W   PROB 50
              ENCODED -   NIL   UPDATE TIME NIL

9.   ENCODED POSITION PROVIDED BY: NIL

10.   NEXT PASS TIMES
              RESOLVED   - NIL
              DOPPLER A - 22 FEB 96 1830 UTC
              DOPPLER B - 22 FEB 96 1831 UTC
              ENCODED   - NIL

11.   HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12.   ACTIVATION TYPE - MANUAL

13.   BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14.   OTHER ENCODED INFORMATION
              A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948

15.   OPERATIONAL INFORMATION
              A.   REGISTRATION INFORMATION AT UKMCC
                      TELEX: 45677 SRCC G
                      AFTN: EGDBZSZX
                      TELEPHONE: (44-1752) 605444

              B.   RELIABILITY OF DOPPLER POSITION DATA - SUSPECT

16.   REMARKS
              THIS POSITION 200 KILOMETRES FROM PREVIOUS ALERT

END OF MESSAGE

**SAMPLE MESSAGE FOR
SIT 185**

**SAMPLE 406 MHz NOCR ALERT
(LEOSAR - encoded position)**

1.   DISTRESS COSPAS-SARSAT NOTIFICATION OF COUNTRY OF BEACON REGISTRATION
ALERT

2.   MSG NO. 16999   UKMCC REF 12345

3.   DETECTED AT 22 FEB 95 1708 UTC BY SARSAT 04

4.   DETECTION FREQUENCY 406.0269 MHZ

5.   COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6.   USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7.   EMERGENCY CODE - NIL

8.   POSITIONS
              RESOLVED -   NIL
              DOPPLER A -   NIL
              DOPPLER B -   NIL
              ENCODED   -   50 24.0N 005 16.0W   UPDATE TIME UNKNOWN

9.   ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10.   NEXT PASS TIMES
              RESOLVED - NIL
              DOPPLER A - NIL
              DOPPLER B - NIL
              ENCODED   - NIL

11.   HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12.   ACTIVATION TYPE - MANUAL

13.   BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14.   OTHER ENCODED INFORMATION
              A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948

15.   OPERATIONAL INFORMATION
              A.   REGISTRATION INFORMATION AT UKMCC
                      TELEX: 45677 SRCC G
                      AFTN: EGDBZSZX
                      TELEPHONE: (44-1752) 605444

              B.   RELIABILITY OF ENCODED DATA - GOOD

16.   REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 406 MHz INITIAL ALERT
(GEOSAR - without encoded position)

1.   DISTRESS COSPAS-SARSAT INITIAL ALERT

2.   MSG NO. 16998   UKMCC REF 12345

3.   DETECTED AT 22 FEB 95 1708 UTC BY GOES 08

4.   DETECTION FREQUENCY 406.0269 MHZ

5.   COUNTRY OF BEACON REGISTRATION 232/G.BRITAIN

6.   USER CLASS - MARITIME ID MMSI LAST SIX DIGITS 387718

7.   EMERGENCY CODE - NIL

8.   POSITIONS
                RESOLVED -   NIL
                DOPPLER A -   NIL
                DOPPLER B -   NIL
                ENCODED   -   NIL

9.   ENCODED POSITION PROVIDED BY EXTERNAL DEVICE

10.   NEXT PASS TIMES
                RESOLVED   - NIL
                DOPPLER A - NIL
                DOPPLER B - NIL
                ENCODED   - NIL

11.   HEX ID BEEE01D20001401   HOMING SIGNAL 121.5 MHZ

12.   ACTIVATION TYPE - MANUAL

13.   BEACON NUMBER ON AIRCRAFT OR VESSEL   NO. 7

14.   OTHER ENCODED INFORMATION
                A. BEACON MANUFACTURER AND MODEL NUMBER - LITTON/948

15.   OPERATIONAL INFORMATION
                A.   REGISTRATION INFORMATION AT UKMCC
                        TELEX: 45677 SRCC G
                        AFTN: EGDBZSZX
                        TELEPHONE: (44-1752) 605444

                B.   RELIABILITY OF ENCODED POSITION DATA - GOOD

16.   REMARKS - NIL

END OF MESSAGE

SAMPLE MESSAGE FOR
SIT 185

SAMPLE 121.5 MHz INITIAL ALERT

1.   DISTRESS COSPAS-SARSAT INITIAL ALERT

2.   MSG NO. 18001 UKMCC REF 40007/40008

3.   DETECTED AT 22 FEB 96 1738 UTC BY SARSAT 02

4.   DETECTION FREQUENCY 121.5678 MHz

5.   NIL

6.   NIL

7.   NIL

8.   POSITIONS
              RESOLVED -   NIL
              DOPPLER A -   56 16.1N 001 18.4W   PROB 50
              DOPPLER B -   54 47.9N 019 37.0W   PROB 50
              ENCODED   -   NIL

9.   NIL

10.   NEXT PASS TIMES
              RESOLVED   - NIL
              DOPPLER A - 22 FEB 96 1830 UTC
              DOPPLER B - 22 FEB 96 1831 UTC
              ENCODED   - NIL

11.   NIL

12.   NIL

13.   NIL

14.   NIL

15.   OPERATIONAL INFORMATION
              A.   DOPPLER TECHNICAL QUALITY - FAIR

16.   REMARKS - NIL

END OF MESSAGE

Appendix 4

Alert Message Structures

Alert Message structures are presented here. Each message is on a separate page. The length of each message section can vary. Note that for all 160 series messages (406 Beacon alert messages) the Support Data Block starts on a new page. The Incident Feedback Sheet (page 3 for the 160 series) also starts on a new page.

The message font is Courier New, 10 point.

- Remainder of Page Blank -

121/243 First Alert

Message Type 151: The Message Administration Block contains information as described for
messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the
plain language title of the message.

Sample Message Type 151 Administration Block:

```
/62141 00000/3660/98 015 0030
/151/366F


*************************  121/243 FIRST ALERT  *************************
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0030	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	151	Message Type
/	5	1	/	
None	6	4	366F	Message destination code

Sample Message Type 151 Alert Data Block:

```
*********************  DETECTION TIME AND POSITIONS ***********************

SITE ID  LATITUDE  LONGITUDE DETECT TIME   FREQ     SWP SAT SOURCE SRR    /BUFFER
3A12345  29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  TX1      PACAR
3B12345  28 24.4N 089 34.5W 15 0015 JAN D121.457 YES S3  TX1      AFRCC /CGD08
2A12347  39 12.4N 123 34.5W 15 0016 JAN  243.001 UNK S3  TX1      PACAR
2B12347  38 11.4N 089 34.5W 15 0016 JAN  243.001 UNK S3  TX1      AFRCC
```

Field Header	Starting Column	Length	Example of Data	Comments
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX1	
SRR	65	6	PACAR	
/	71	1	/	Only used when there is data in the BUFFER field
BUFFER	72	6	CGD08	

Sample Message Type 151 Support Data Block:

```
*********************** SUPPORTING INFORMATION ***************************

USMCC PROCESSING TIME: 15 0030 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, AFRCC, CGD08

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: NONE

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID   SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
3A12345   A     15 0045 JAN   S3    SSE      HIGH
3A12345   A     15 0239 JAN   C4    OSE      LOW (WILL NOT COUNT AS MISSED PASS)
3B12345   B     15 0200 JAN   S3    SSE      LOW (WILL NOT COUNT AS MISSED PASS)
3B12345   B     15 0240 JAN   C6    TX1      HIGH
2A12347   A     15 0200 JAN   S3    SSE      HIGH
2A12347   A     15 0239 JAN   C4    OSE      HIGH
2B12347   B     15 0200 JAN   S3    SSE      LOW (WILL NOT COUNT AS MISSED PASS)
2B12347   B     15 0240 JAN   C6    TX1      LOW (WILL NOT COUNT AS MISSED PASS)


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 151 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0030 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	N/A	N/A	Blank for this message type.	Data always starts on line following header. No data is available because this is the first alert message.
PREVIOUS PASS INFORMATION: NONE				
	N/A	N/A	Blank for this message type.	No data is available because this is the first alert message.
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SAT	28	3	S3	
SOURCE	33	6	SSE	
VISIBILITY	41	35	HIGH	
QQQQ /LASSIT /ENDMSG				End of message flag

121/243 Notification of Ambiguity Resolution

Message Type 156: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message, the Site ID and the Image Site ID.

Sample Message Type 156 Administration Block:

```
/62141 00000/3660/98 015 0100
/156/366F


****************** 121/243 NOTIFICATION OF AMBIGUITY RESOLUTION *************

SITE ID: 3A12345                                          IMAGE SITE: 3B12345


```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0100	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	156	Message Type
/	5	1	/	
None	6	4	366F	Message destination code
Site ID	10	7	3A12345	
Image Site	71	7	3B12345	

Sample Message Type 156 Alert Data Block:

```
**************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION  **************

LATITUDE   LONGITUDE   DURATION    PASSES   SRR   /BUFFER
29 23.4N   123 34.5W   001.5 HRS   002      PACAR

**********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION  **********

SITE ID   LATITUDE LONGITUDE DETECT TIME   FREQ     SWP SAT SOURCE
3A12345   29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE
```

Field Header	Starting Column	Length	Example of Data	Comments
Ambiguity resolved to the following position				
LATITUDE	1	8	29 23.4N	
LONGITUDE	11	9	123 34.5W	
DURATION	22	9	001.5 HRS	
PASSES	33	6	002	
SRR	41	6	PACAR	
/	47	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	48	6	(blank)	No data in BUFFER in this example
Ambiguity resolved from the following new information				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX1	

Sample Message Type 156 Support Data Block:

```
*********************** SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0058 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, CGD08, AFRCC

PREVIOUS PASS INFORMATION:

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ    SWP SAT SOURCE SRR   /BUFFER
3A12345   29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT    PACAR

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345  C    15 0220 JAN S3    SSE     HIGH
3A12345  C    15 0239 JAN C4    OSE     LOW (WILL NOT COUNT AS MISSED PASS)
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0030 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	MULT	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SAT	28	3	S3	

A4-10

SOURCE	33	6	SSE	
VISIBILITY	41	35	HIGH	

121/243 Composite Position Update

Message Type 157: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message and the Site ID.

Sample Message Type 157 Administration Block:

```
/62141 00000/3660/98 015 0200
/157/366F


******************  121/243 COMPOSITE POSITION UPDATE ********************

SITE ID: 3A12345
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0200	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	157	Message Type
/	5	1	/	
None	6	4	366F	Message destination code
Site ID	10	7	3A12345	

Sample Message Type 157 Alert Data Block:

```
******************** POSITION UPDATED TO THE FOLLOWING  ********************

LATITUDE   LONGITUDE   DURATION   PASSES   SRR   /BUFFER
29 23.4N   123 34.5W   001.6 HRS  003      PACAR

**************** POSITION UPDATED FROM THE FOLLOWING ALERT  ****************

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ     SWP SAT SOURCE
3A12345   29 23.4N 123 34.5W 15 0150 JAN D121.457 YES C6  CMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
Position updated to the following				
LATITUDE	1	8	29 23.4N	
LONGITUDE	11	9	123 34.5W	
DURATION	22	9	001.5 HRS	
PASSES	33	6	003	
SRR	41	6	PACAR	
/	47	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	48	6	(blank)	No data in BUFFER in this example
Position updated from the following alert				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX1	

A4-13

Sample Message Type 157 Support Data Block:

```
************************  SUPPORTING INFORMATION  **************************

USMCC PROCESSING TIME: 15 0159 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID   LATITUDE LONGITUDE DETECT TIME  FREQ     SWP SAT SOURCE SRR   /BUFFER
3A12345   29 23.4N 123 34.5W 15 0015 JAN D121.457 YES S3  MULT   PACAR
3A12345   29 23.4N 123 34.5W 15 0045 JAN D121.457 YES S3  SSE    PACAR

NEXT TIME SIGNAL SHOULD BE DETECTED:

SITE ID  SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
3A12345  C    15 0200 JAN  S3   SSE     HIGH
3A12345  C    15 0239 JAN  C4   OSE     HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0159 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 23.4N	
LONGITUDE	19	9	123 34.5W	
DETECT TIME	29	11	15 0015 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	MULT	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	A	
DETECT TIME	15	11	15 0045 JAN	
SOURCE	28	3	S3	

SAT	33	6	SSE	
VISIBILITY	41	35	HIGH	

121/243 Missed Pass/Site Status Report

Message Type 158: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 158 Administration Block:

```
/62141 00000/3660/98 015 0300
/158/366F


****************** 121/243 MISSED PASS/SITE STATUS REPORT ******************
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62141	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0200	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	158	Message Type
/	5	1	/	
None	6	4	366F	Message destination code

Sample Message Type 158 Alert Data Block:

```
*************************  CURRENT ACTIVE SITES  *************************

SITE ID  LATITUDE  LONGITUDE  DURATION  PASSES  SRR   /BUFFER   MP CLOSED
3A12345  29 45.5N  123 56.9W  001.5 HRS 003     PACAR           1  NO
2B12347  39 23.5N  124 34.5W  001.0 HRS 001     PACAR           1  NO



********  ABOVE SITE(S) WERE NOT DETECTED DURING THE FOLLOWING PASS  ********

DETECT TIME  SAT SOURCE
15 0250 JAN  S3  CA1
```

Field Header	Starting Column	Length	Example of Data	Comments
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 45.5N	
LONGITUDE	20	9	123 56.9W	
DURATION	31	9	001.5 HRS	
PASSES	41	6	003	
SRR	49	6	PACAR	
/	55	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	56	6	(blank)	No data in BUFFER in this example
MP	65	1	1	
CLOSED	68	6	NO	
Above site(s) were not detected during the following pass				
DETECT TIME	1	11	15 0250 JAN	
SAT	14	3	S3	
SOURCE	18	6	CA1	

Sample Message Type 158 Support Data Block:

```
*********************** SUPPORTING INFORMATION ***************************

USMCC PROCESSING TIME: 15 0256 JAN

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR

ALERT MESSAGES FOR SIGNAL(S) PREVIOUSLY SENT TO:
        PACAR, AFRCC, CGD08

PREVIOUS PASS INFORMATION:

SITE ID   LATITUDE LONGITUDE DETECT TIME   FREQ     SWP SAT SOURCE SRR    /BUFFER
3A12345   29 45.4N 123 55.5W 15 0200 JAN D121.457 YES S3  TX2    PACAR
3A12345   29 45.9N 123 59.5W 15 0124 JAN D121.457 YES S6  CA1    PACAR
2B12347   39 23.4N 123 34.5W 15 0159 JAN 243.011  YES S3  CA2    PACAR /CGD13


NEXT TIME SIGNAL(S) SHOULD BE DETECTED:

SITE ID  SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
1A12345  C     15 0200 JAN   S3    SSE      HIGH
1A12345  C     15 0239 JAN   C4    OSE      LOW (WILL NOT COUNT AS MISSED PASS)


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0256 JAN	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, AFRCC, CGD08	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
SITE ID	1	7	3A12345	
LATITUDE	10	8	29 45.4N	
LONGITUDE	19	9	123 55.5W	
DETECT TIME	29	11	15 0200 JAN	
(no header)	41	1	D	Blank if not a dual signal
FREQ	42	7	121.457	
SWP	50	3	YES	
SAT	54	3	S3	
SOURCE	58	6	TX2	
SRR	65	6	PACAR	
/	71	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	72	6	(blank)	No data in BUFFER in this example
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SITE ID	1	7	SA12345	
SOL	10	3	C	
DETECT TIME	15	11	15 0200 JAN	
SAT	28	3	S3	

SOURCE	33	6	SSE	
VISIBILITY	41	35	HIGH	

406 Beacon Unlocated First Alert

Message Type 160: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 160 Administration Block:

```
/62145 00000/3660/98 046 0104
/160/366M


********************  406 BEACON UNLOCATED FIRST ALERT ********************

BEACON ID: ADCD0 16672 C0401            SITE ID: 73324

```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62145	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 046 0104	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	160	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73324	

Sample Message Type 160 Alert Data Block:

```
*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  *************

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
N/A    N/A   N/A                  15 0004 FEB   S3    SSE      CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	N/A	
LONGITUDE	21	9	N/A	
DETECT TIME	32	11	15 0004 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 160 Beacon Decode Data Block:

```
************* BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION *********

COUNTRY     : USA           CRAFT ID   : WAQ7615
MID CODE    : 366           HOMING     : 121.5 MHZ
MANUFACTURER: LITTON        MODEL      : 948-000001
SERIAL NUM  : 234567        BEACON TYPE: MARITIME
```

Field Header	Starting Column	Length	Example of Data	Comments
COUNTRY	15	16	USA	
MID	15	3	366	
MANUFACTURER	15	16	LITTON	
SERIAL NUMBER	15	14	234567	
CRAFT ID	45	12	WAQ7615	
HOMING	45	8	121.5 MHZ	
MODEL	45	16	948-000001	
BEACON TYPE	45	24	MARITIME	

Sample Message Type 160 Beacon Registration Data Block:

```
******************  USMCC REGISTRATION DATABASE INFORMATION  ***************

OWNER: LEONARD SHRIMP PRODUCERS INC
       1058 ISLAND AVENUE           HOME TEL: 813-934-4657
       TARPON SPRINGS        FL     WORK TEL: 813-934-5678
       34689     USA

CONTACTS: DAN LEONARD              ELROY LEONARD
          HOME TEL: 813-937-0987   HOME TEL: 904-824-0532
          WORK TEL: 813-934-3465   WORK TEL: 904-829-6554

CELLULAR NUMBER:

VESSEL NAME: MISS MARIE
TYPE: POWER TRAWLER               LENGTH OVERALL (FT):   75
COLOR: GRAY                       CAPACITY:   8
REGISTRATION NO: 636170           RADIO CALL SIGN: WAQ7615
INMARSAT NUMBER:                  RADIO EQP: VHF-FM, INMARSAT

HOME PORT: RICK'S MARINA          SHALLOTTE              NC
ALTERNATE PORT:

MANUFACTURER: LITTON              MODEL NUMBER: 948-01
ACTIVATION TYPE: CAT1 (MANUAL OR AUTOMATIC)

DATE FIRST REGISTERED: 26 JAN 1993   DATE DECAL EXPIRES: 31 DEC 1995
DATE LAST UPDATED:  26 JAN 1993

REMARKS:
```

Sample Message Type 160 Beacon Registration Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
OWNER NAME	8	28	LEONARD SHRIMP PRODUCERS INC	
OWNER STREET	8	23	1058 ISLAND AVE	
OWNER CITY	8	23	TARPON SPRINGS	
OWNER STATE	32	2	FL	
OWNER ZIP	8	6	34689	
OWNER COUNTRY	18	16	USA	
OWNER HOME TELE	21	12	813-934-4657	
OWNER WORK TELE	21	12	813-934-5678	
PRI CONTACT NAME	11	23	DAN LEONARD	
PRI CONTACT HOME TEL	21	12	813-937-0987	
PRI CONTACT WORK TEL	21	12	813-934-3456	
SEC CONTACT NAME	38	23	ELROY LEONARD	
SEC CONTACT HOME TEL	48	12	904-824-0532	
SEC CONTACT WORK TEL	48	12	904-829-6554	
CELLULAR NUMBER	18	12		
VESSEL NAME	14	21	MISS MARIE	
TYPE	7	20	POWER TRAWLER	
COLOR	8	13	GRAY	
REGISTRATION NO	18	6	636170	
INMARSAT NO	18	12		
LENGTH OVERALL	59	4	75	
CAPACITY	48	4	8	
RADIO CALL SIGN	55	10	WAQ7615	
RADIO EQP	49	22	VHF-FM, INMARSAT	

HOME PORT NAME	12	20	RICK'S MARINA	
HOME PORT CITY	38	23	SHALLOTTE	
HOME PORT STATE	62	2	NC	
ALTERNATE PORT	17	22		
MANUFACTURER	15	20	LITTON	
MODEL NUMBER	52	10	948-01	
ACTIVATION TYPE	18	30	CAT1 (MANUAL OR AUTOMATIC)	
DATE FIRST REGISTERED	24	11	26 JAN 1993	
DATE DECAL EXPIRES	58	11	31 DEC 1995	
DATE LAST UPDATE	21	11	26 JAN 1993	
REMARKS	10	120		

Sample Message Type 160 Support Data Block:

```
************************* SUPPORTING INFORMATION *************************

USMCC PROCESSING TIME: 15 0100 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: N/A


NEXT TIME BEACON SHOULD BE DETECTED: N/A



QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0100 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	9	60	N/A	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				

406 Beacon Located First Alert (Ambiguity Unresolved)

Message Type 161: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 161 Administration Block:

```
/62145 00000/3660/98 046 0104
/161/366M


***********  406 BEACON LOCATED FIRST ALERT (AMBIGUITY UNRESOLVED) ***********

BEACON ID: ADCD0 16672 C0401            SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 046 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	161	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

```
Sample Message Type 161 Alert Data Block:

***************  DETECTION TIME AND POSITIONS FOR THE BEACON  ***************

PROB  SOL   LATITUDE LONGITUDE   DETECT TIME   SAT  SOURCE   SRR   /BUFFER
50    A     28 25.6N 100 12.3W   15 0045 FEB   S3   SSE      CGD08 /AFRCC
50    B     28 35.6N 072 18.3W   15 0045 FEB   S3   SSE      CGD07

OR

N/A   E     28 34.5N 072 12.3W   15 0045 FEB   S3   SSE      CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 161 Beacon Decode Data Block: See Message type 160.

Sample Message Type 161 Beacon Registration Data Block: See Message type 160

Sample Message Type 161 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO: N/A


PREVIOUS PASS INFORMATION: N/A


NEXT TIME BEACON SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
A     15 0200 FEB   S3    SSE      HIGH
A     15 0239 FEB   C4    OSE      LOW (WILL NOT COUNT AS MISSED PASS)
B     15 0200 FEB   S3    SSE      HIGH
B     15 0240 FEB   C6    TX1      HIGH

QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 161 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	9	60	N/A	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
	9	60	N/A	Data always starts on line following header.
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	15 0200 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

406 Beacon Located First Alert Update (Ambiguity Unresolved)

Message Type 162: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 162 Administration Block:

```
/62146 00000/3660/98 046 0105
/162/366M


*******  406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED) ********

BEACON ID: ADCD0 16672 C0401              SITE ID: 73326

```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	162	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 162 Alert Data Block:

```
****************  DETECTION TIME AND POSITIONS FOR THE BEACON  **************

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
90     A     28 25.6N 100 12.3W   15 0045 FEB   S3    SSE      CGD08 /AFRCC
10     B     28 35.6N 072 18.3W   15 0045 FEB   S3    SSE      CGD07

or

N/A    E     28 34.5N 072 12.3W   15 0045 FEB   S3    SSE      CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	CGD08	
/	64	1	/	Only used when there is data in the BUFFER field
BUFFER	65	6	AFRCC	

Sample Message Type 162 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 162 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 162 Support Data Block:

```
*************************  SUPPORTING INFORMATION  **********************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR    /BUFFER
50     A     28 25.6N 100 12.3W   15 0045 FEB   S3    SSE      CGD08 /AFRCC
50     B     28 35.6N 072 18.3W   15 0045 FEB   S3    SSE      CGD07


NEXT TIME BEACON SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
A     15 0200 FEB   S3    SSE      HIGH
A     15 0239 FEB   C4    OSE      HIGH
B     15 0200 FEB   S3    SSE      HIGH
B     15 0240 FEB   C6    TX1      HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	28 25.6N	
LONGITUDE	21	9	100 12.3W	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	CGD07	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	15 0200 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

406 Beacon Position Conflict Alert (Ambiguity Unresolved)

Message Type 163: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 163 Administration Block:

```
/62150 00000/3660/98 047 1810
/163/366H


********  406 BEACON POSITION CONFLICT ALERT (AMBIGUITY UNRESOLVED) **********

BEACON ID: ADCD0 16672 C0401            SITE ID: 71423
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62150	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 047 1810	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	163	Message Type
/	5	1	/	
None	6	4	366H	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	71243	

Sample Message Type 163 Alert Data Block:

```
****** POSITION DIFFERENCES OF MORE THAN 50 KMS EXIST FOR THIS BEACON  ******

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
90    A    23 25.6N 169 12.3W  16 1759 FEB  S3   CA2     CGD14
10    B    26 35.6N 121 16.9W  16 1759 FEB  S3   CA2     PACAR

or

N/A   E    28 34.5N  072 12.3W  15 0045 FEB  S3   SSE     CGD07
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	90	Probability (01-99, N/A)
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	23 25.6N	
LONGITUDE	21	9	169 12.3W	
DETECT TIME	32	11	16 1759 FEB	
SAT	45	3	S3	
SOURCE	50	6	CA2	
SRR	58	6	CGD14	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	

Sample Message Type 163 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 163 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 163 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 16 1809 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        PACAR, CGD14, AFRCC, CGD13

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        PACAR, CGD14, AFRCC, CGD13

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE  LONGITUDE   DETECT TIME   SAT   SOURCE   SRR    /BUFFER
50     A     23 23.4N 123 23.3W   16 1700 FEB   S3    TX1      PACAR
50     B     24 26.3N 098 45.7W   16 1700 FEB   S3    TX1      AFRCC
80     A     18 57.9N 167 23.6W   16 1734 FEB   C6    HI1      CGD14
20     B     39 45.9N 134 56.4W   16 1734 FEB   C6    HI1      CGD13

NEXT TIME BEACON SHOULD BE DETECTED: N/A


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 163 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	16 1809 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	PACAR, CGD14, AFRCC, CGD13	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	PACAR, CGD14, AFRCC, CGD13	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	23 23.4N	
LONGITUDE	21	9	123 23.3W	
DETECT TIME	32	11	16 1700 FEB	
SAT	45	3	S3	
SOURCE	50	6	TX1	
SRR	58	6	PACAR	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED: N/A				SINCE THERE IS A CONFLICT WITH THE POSITION, THE NEXT PSAS CANNOT BE PREDICTED.

406 Beacon Notification of Ambiguity Resolution

Message Type 164: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 164 Administration Block:

```
/61243 00000/3660/98 048 0615
/164/366S


*************** 406 BEACON NOTIFICATION OF AMBIGUITY RESOLUTION  *************

BEACON ID: ADCD1 76322 C0801              SITE ID: 73321
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 048 0615	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	164	Message Type
/	5	1	/	
None	6	4	366S	Message destination code
Beacon ID	12	17	ADCD1 76322 C0801	
Site ID	51	28	73321	

Sample Message Type 164 Alert Data Block:

```
***************  AMBIGUITY RESOLVED TO THE FOLLOWING POSITION  *************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER
38 45.5N 076 56.9W  001.5 HRS 003      AFRCC

***********  AMBIGUITY RESOLVED FROM THE FOLLOWING NEW INFORMATION  *********

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
N/A   E    38 43.2N 076 52.3W  17 0545 FEB  S3   PR1
```

Field Header	Starting Column	Length	Example of Data	Comments
Ambiguity resolved to the following position				
LATITUDE	1	8	38 45.5N	
LONGITUDE	10	9	076 56.9W	
DURATION	21	9	001.5 HRS	
PASSES	31	3	003	
SRR	39	6	AFRCC	
/	45	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	46	6	(blank)	
Ambiguity resolved from the following new information				
PROB	1	3	N/A	
SOL	7	3	E	ENCODED LOCATION
LATITUDE	12	8	38 43.2N	
LONGITUDE	21	9	076 52.3W	
DETECTION TIME	32	11	17 0545 FEB	
SAT	45	3	S3	
SOURCE	50	6	PR1	

Sample Message Type 164 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 164 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 164 Support Data Block:

```
***********************  SUPPORTING INFORMATION  *************************

USMCC PROCESSING TIME: 17 0613 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC, LANTAR

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, LANTAR

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE LONGITUDE  DETECT TIME  SAT   SOURCE   SRR   /BUFFER
50     A     38 42.4N 077 00.3W  17 0430 FEB  S4    SSE      LANTAR


NEXT TIME BEACON SHOULD BE DETECTED:

SOL   DETECT TIME  SAT   SOURCE   VISIBILITY
C     17 0713 FEB  S3    SSE      HIGH
C     17 0824 FEB  S3    OSE      HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 0613 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC, LANTAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, LANTAR	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	38 42.4N	
LONGITUDE	21	9	077 00.3W	
DETECT TIME	32	11	17 0430 FEB	
SAT	45	3	S4	
SOURCE	50	6	SSE	
SRR	58	6	LANTAR	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 0713 FEB	
SAT	19	3	S3	
SOURCE	24	6	SSE	
VISIBILITY	32	35	HIGH	

**406 Beacon Composite Position Update; or
406 Beacon Composite Update with Position Conflict**

Message Type 165: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 165 Administration Block:

```
/62146 00000/3660/98 046 0105
/165/366M


********************  406 BEACON COMPOSITE POSITION UPDATE  ****************
OR
*************  406 BEACON COMPOSITE UPDATE WITH POSITION CONFLICT  **********

BEACON ID: ADCD0 16672 C0401            SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 015 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	165	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 165 Alert Data Block:

```
********************  POSITION UPDATED TO THE FOLLOWING  ********************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER
64 12.8N 149 23.0W  014.3 HRS 006      AKRCC

*****************  POSITION UPDATED FROM THE FOLLOWING ALERT  ***************
OR
*** COMPOSITE POSITION DIFFERS BY MORE THAN 50 KM FROM THE FOLLOWING ALERT***

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE
10    B    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC
N/A   E    64 12.2N 149 23.3W  17 1151 FEB  S3   CMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
Position updated to the following				
LATITUDE	1	8	64 12.8N	
LONGITUDE	10	9	149 23.0W	
DURATION	21	9	014.3 HRS	
PASSES	31	3	006	
SRR	39	6	AKRCC	
/	45	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	46	6	(blank)	
Position updated from the following Alert				
PROB	1	3	10	
SOL	7	3	B	
LATITUDE	12	8	64 13.6N	
LONGITUDE	21	9	149 24.1w	
DETECTION TIME	32	11	17 1151 FEB	
SAT	45	3	S3	
SOURCE	50	6	CMCC	

Sample Message Type 165 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 165 Support Data Block:

```
*************************  SUPPORTING INFORMATION  *************************

USMCC PROCESSING TIME: 17 1143 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CGD08, CGD07

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
50     A     64 12.9N 148 23.3W   17 1023 FEB   S3    AK1      AKRCC
90     A     64 11.9N 152 11.9W   17 0400 FEB   S4    CMCC     AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
C     17 1300 FEB   C6    AK1      HIGH
C     17 1539 FEB   S4    AK1      HIGH


QQQQ
/LASSIT
/ENDMSG
```

Sample Message Type 165 Support Data Block:

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1143 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, CGD08, CGD07	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 1300 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	HIGH	

406 Beacon Missed Pass/Site Status Report

Message Type 166: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 166 Administration Block:

```
/61243 00000/3660/98 048 1330
/166/366A



****************  406 BEACON MISSED PASS/SITE STATUS REPORT  ****************

BEACON ID: ADCD0 16672 C0401              SITE ID: 73321 (OPEN)
                                                   (CLOSED - TIME)
                                                   (CLOSED - MISSED PASS)
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 048 1330	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	166	Message Type
/	5	1	/	
None	6	4	366A	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73321 (OPEN)	

Sample Message Type 166 Alert Data Block:

```
*************************  CURRENT ACTIVE SITE  *************************

LATITUDE LONGITUDE  DURATION  PASSES  SRR   /BUFFER  MP
64 12.8N 149 23.0W  014.3 HRS 006     AKRCC          1


OR


SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER  MP
A    64 13.6N 149 24.1W  17 1151 FEB  S3   CMCC    AKRCC          1
B    68 12.2N 119 23.3W  17 1151 FEB  S3   CMCC    CMCC           2


************ ABOVE BEACON WAS NOT DETECTED DURING THE FOLLOWING PASS  *******

DETECT TIME  SAT  SOURCE
17 1300 FEB  C6   AK1
```

Sample Message Type 166 Alert Data Block:

Field Header	Starting Column	Length	Example of Data	Comment
Current Active Site				
LATITUDE	1	8	64 12.8N	
LONGITUDE	10	9	149 23.0W	
DURATION	21	11	014.3	
PASSES	31	3	006	
SRR	39	6	AKRCC	
/	45	1	/	Only used when there is data in the BUFFER field
BUFFER	46	6	AFRCC	
MP	54	4	1	Number of missed passes
OR				
SOL	1	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	6	8	64 13.6N	
LONGITUDE	15	9	149 24.1W	
DETECT TIME	26	11	17 1151 FEB	
SAT	39	3	S3	
SOURCE	44	6	CMCC	
SRR	52	6	AKRCC	
/	58	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	59	6	(blank)	
MP	67	4	1	Number of missed passes
Above beacon was not detected during the following pass				
DETECT TIME	1	11	17 1300 FEB	
SAT	14	3	C6	
SOURCE	19	6	AK1	

Sample Message Type 166 Support Data Block:

```
************************** SUPPORTING INFORMATION **************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AFRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AFRCC, CMCC

PREVIOUS PASS INFORMATION:

PROB  SOL   LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A     64 12.9N 148 23.3W  17 1023 FEB  S3   AK1     AKRCC
90    A     64 11.9N 152 11.9W  17 0400 FEB  S4   CMCC    AKRCC
N/A   E     64 17.4N 149 23.3W  16 2345 FEB  C4   AK2     AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
C    17 1539 FEB  C6   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
C    17 1735 FEB  S4   AK1     HIGH

OR
SOL  DETECT TIME  SAT  SOURCE  VISIBILITY
A    17 1539 FEB  C6   AK1     HIGH
A    17 1739 FEB  S4   AK1     LOW (WILL NOT COUNT AS MISSED PASS)
B    17 1539 FEB  C6   AK1     HIGH
B    17 1739 FEB  S4   AK1     HIGH

QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1330 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AFRCC	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AFRCC, CMCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	A	
DETECT TIME	6	11	17 1539 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	LOW (WILL NOT COUNT AS MISSED PASS)	

406 Beacon Detection Update

Message Type 167: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 167 Administration Block:

```
/61243 00000/3660/98 048 1330
/167/366A


*********************** 406 BEACON DETECTION UPDATE  ********************

BEACON ID: ADCD0 16672 C0401              SITE ID: 73321
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62143	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 048 1330	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	167	Message Type
/	5	1	/	
None	6	4	366A	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73321 (OPEN)	

Sample Message Type 167 Alert Data Block:

```
*************** DETECTION UPDATE DUE TO FOLLOWING UNLOCATED ALERT ************

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE
N/A    N/A   N/A                  17 1300 FEB   C6    AK1
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	N/A	
LONGITUDE	21	9	N/A	
DETECT TIME	32	11	17 1300 FEB	
SAT	45	3	C6	
SOURCE	50	6	AK1	

Sample Message Type 167 Support Data Block:

```
*************************  SUPPORTING INFORMATION  *************************

USMCC PROCESSING TIME: 17 1330 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        AKRCC

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        AKRCC

PREVIOUS PASS INFORMATION:

PROB   SOL   LATITUDE LONGITUDE   DETECT TIME   SAT   SOURCE   SRR   /BUFFER
50     A     64 12.9N 148 23.3W   17 1023 FEB   S3    AK1      AKRCC
90     A     64 11.9N 152 11.9W   17 0400 FEB   S4    CMCC     AKRCC
N/A    E     64 17.4N 149 23.3W   16 2345 FEB   C4    AK2      AKRCC

NEXT TIME BEACON SHOULD BE DETECTED:

SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
C     17 1539 FEB   C6    AK1      HIGH
C     17 1739 FEB   S4    AK1      HIGH


OR


SOL   DETECT TIME   SAT   SOURCE   VISIBILITY
A     17 1539 FEB   C6    AK1      HIGH
A     17 1739 FEB   S4    AK1      HIGH
B     17 1539 FEB   C6    AK1      LOW (WILL NOT COUNT AS MISSED PASS)
B     17 1739 FEB   S4    AK1      HIGH


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	17 1330 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	AKRCC	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO:				
	9	60	AKRCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION:				
PROB	1	3	50	
SOL	7	3	A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	64 12.9N	
LONGITUDE	21	9	148 23.3W	
DETECT TIME	32	11	17 1023 FEB	
SAT	45	3	S3	
SOURCE	50	6	AK1	
SRR	58	6	AKRCC	
/	64	1	(blank)	Only used when there is data in the BUFFER field
BUFFER	65	6	(blank)	
NEXT TIME SIGNAL(S) SHOULD BE DETECTED:				
SOL	1	3	C	
DETECT TIME	6	11	17 1539 FEB	
SAT	19	3	C6	
SOURCE	24	6	AK1	
VISIBILITY	32	35	HIGH	

USA 406 Beacon Detected Outside US AOR

Message Type 168: The Message Administration Block contains information as described for messages in the Cospas-Sarsat Standard Interface Description for messages. It also contains the plain language title of the message.

Sample Message Type 168 Administration Block:

```
/61246 00000/3660/98 046 0105
/168/366N


******************  USA 406 BEACON DETECTED OUTSIDE US AOR  ****************

BEACON ID: ADCD0 16672 C0401              SITE ID: 73326
```

Field Header	Starting Column	Length	Example of data	Comments
/	1	1	/	Message Header field delimiter
None	2	5	62146	Current Message Number
None	8	5	00000	Original message number
/	13	1	/	
None	14	4	3660	Message originator code
/	18	1	/	
None	19	11	98 046 0105	Year (2 digits); Julian Date; Time
/	1	1	/	
None	2	3	168	Message Type
/	5	1	/	
None	6	4	366M	Message destination code
Beacon ID	12	17	ADCD0 16672 C0401	
Site ID	51	28	73326	

Sample Message Type 168 Alert Data Block:

```
*****************  DETECTION TIME AND POSITIONS FOR THE BEACON  *************

PROB  SOL  LATITUDE LONGITUDE  DETECT TIME  SAT  SOURCE  SRR   /BUFFER
50    A    08 25.6N 097 12.3E  15 0045 FEB  S3   SSE     INMCC
50    B    09 35.6N 147 18.3E  15 0045 FEB  S3   SSE     HKMCC
```

Field Header	Starting Column	Length	Example of Data	Comments
PROB	1	3	N/A	Probability (01-99, N/A)
SOL	7	3	N/A	Solution Identifier (A, B, C, E, N/A)
LATITUDE	12	8	08 25.6N	
LONGITUDE	21	9	097 12.3E	
DETECT TIME	32	11	15 0045 FEB	
SAT	45	3	S3	
SOURCE	50	6	SSE	
SRR	58	6	INMCC	
/	64	1	/	Only used when there is data in the BUFFER field
BUFFER	65	6	HKMCC	

Sample Message Type 168 Beacon Decode Data Block: See Message Type 160.

Sample Message Type 168 Beacon Registration Data Block: See Message Type 160.

Sample Message Type 168 Support Data Block:

```
************************  SUPPORTING INFORMATION  ************************

USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO:
        LANTAR, PACAR

ALERT MESSAGES FOR THIS BEACON PREVIOUSLY SENT TO:
        INMCC, HKMCC

PREVIOUS PASS INFORMATION: N/A

NEXT TIME BEACON SHOULD BE DETECTED: N/A


QQQQ
/LASSIT
/ENDMSG
```

Field Header	Starting Column	Length	Example of Data	Comments
USMCC PROCESSING TIME:	24	11	15 0104 FEB	
THIS ALERT MESSAGE IS BEING SENT TO:				
	9	60	LANTAR, PACAR	Data always starts on line following header
ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: N/A				
	9	60	INMCC, HKMCC	Data always starts on line following header.
PREVIOUS PASS INFORMATION: N/A				
	9	60	N/A	Data always starts on line following header.
NEXT TIME SIGNAL(S) SHOULD BE DETECTED: N/A				

Appendix 5

Support Message Structure

1   Narrative Message
2   Alert Query
3   406 Beacon Registration
4   LUT Pass Schedule
5   Beacon-LUT Mutual Visibility Schedule

Narrative Messages

[To be developed]

Alert Query

[To be developed]

406 Beacon Registration

[To be developed]

LUT Pass Schedule

[To be developed]

Beacon-LUT Mutual Visibility Schedule

[To be developed]